

# **PULP & PAPER**

SEPTEMBER 1957

**How to Lick "Shiners"**

page 41

**Saving Kraft Digesters**

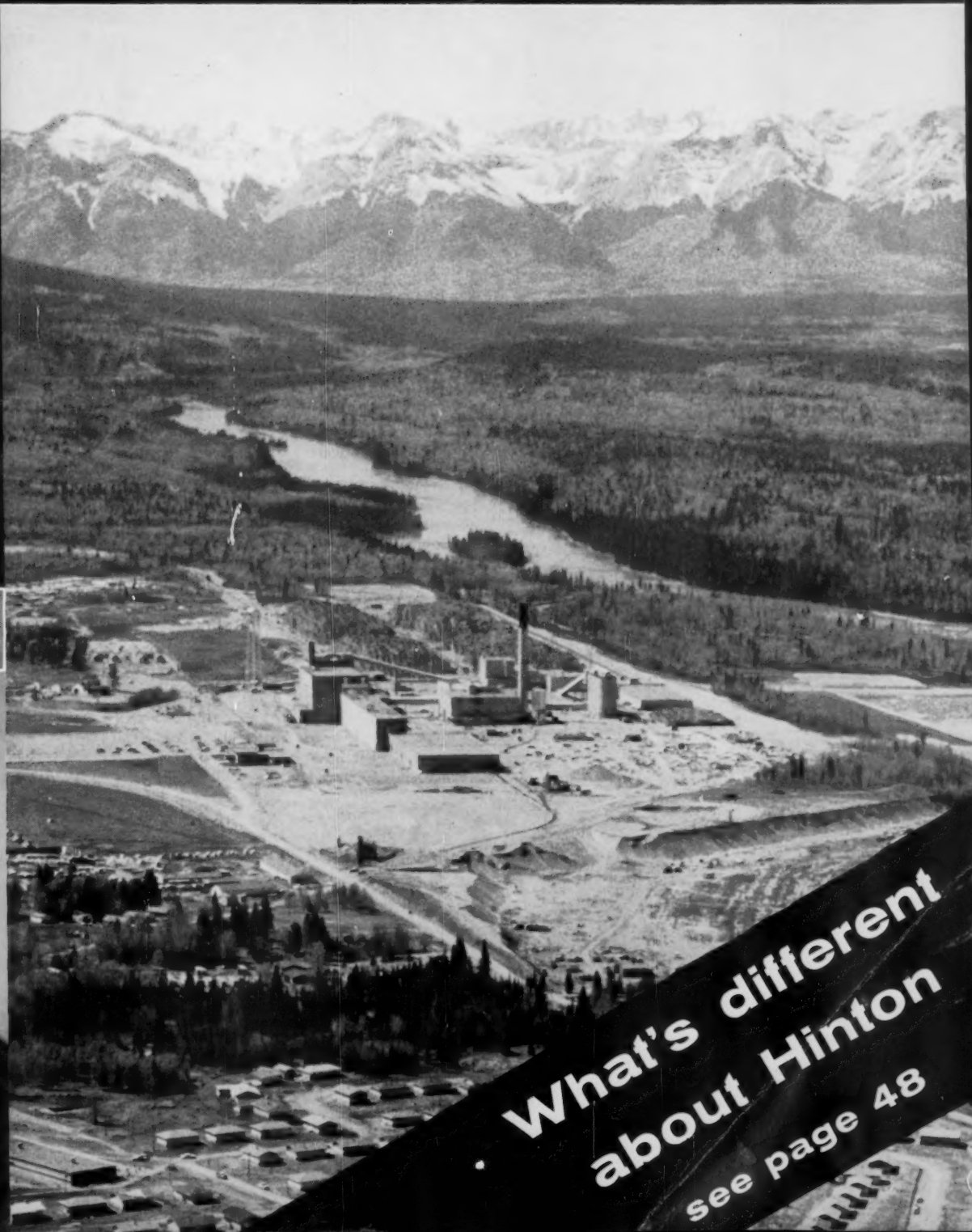
page 61

**Pallets Aid North Loggers**

page 90



Chairman of Board Ferguson  
President Adams



**What's different  
about Hinton**  
see page 48

Maybe you should  
look into this

Formaldehyde

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UREA

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formaldehyde or  
U.F. Concentrate-85  
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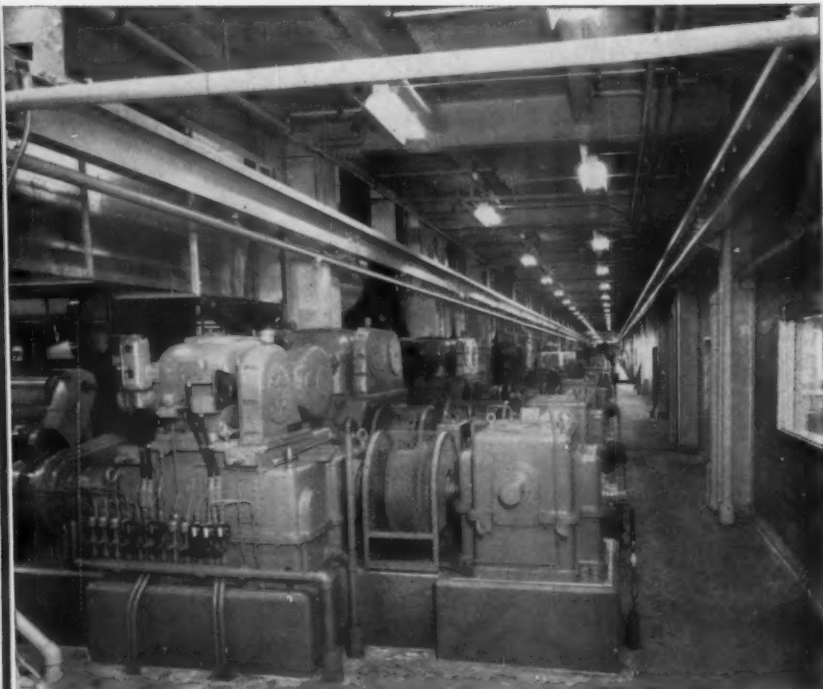
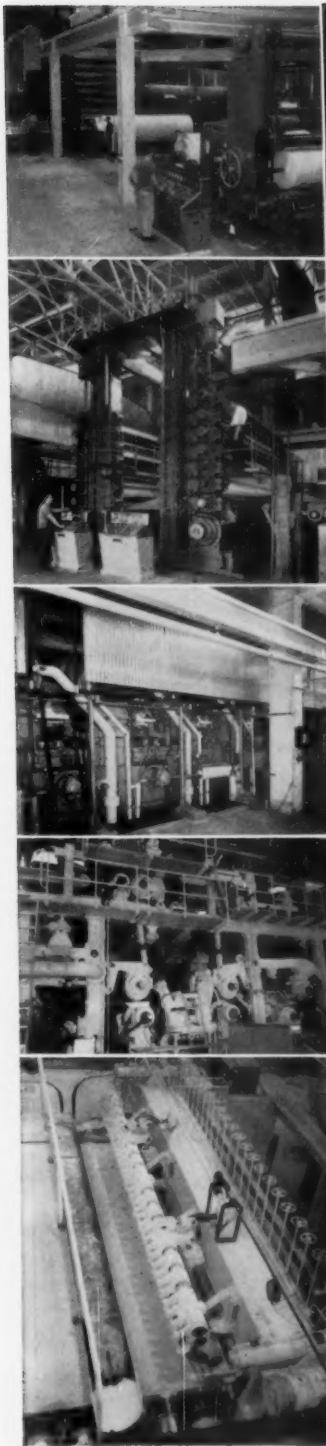
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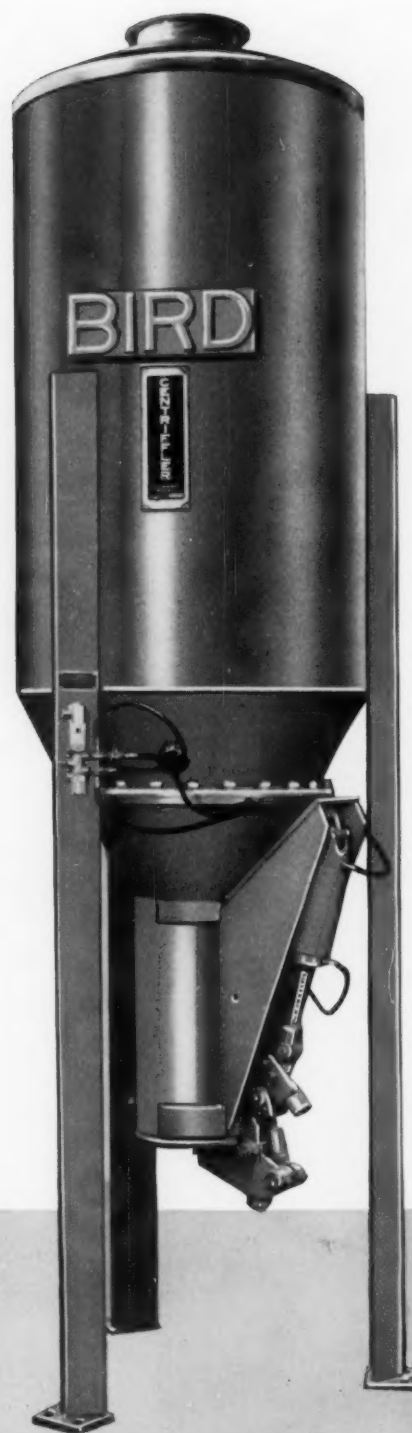
The Bird Centriffler takes stock from the pulpers diluted to about 1½% and delivers up to 1500 gallons of cleaned stock per minute. It has no moving parts.

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Canadian Manufacturers of Bird Machinery  
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This Bird Centriffler is equipped with an automatic dumping device. Quick acting manual dumping mechanism is also available.

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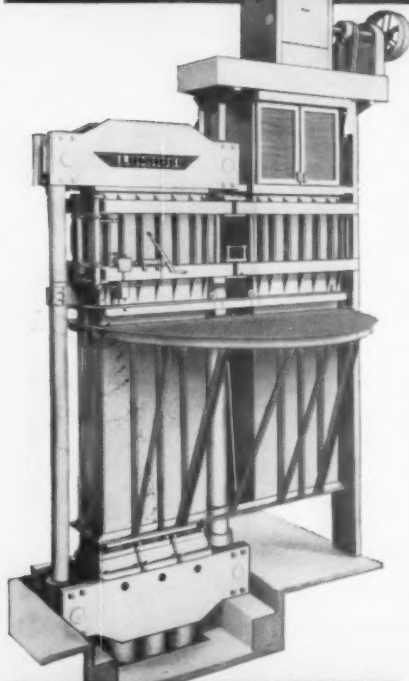
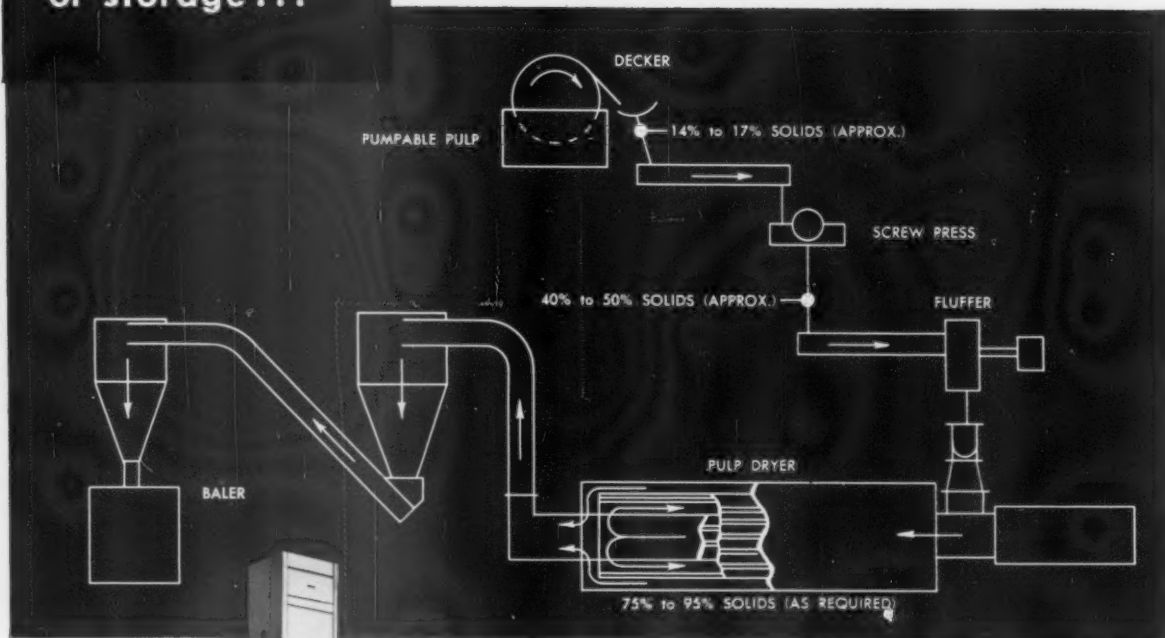
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# PULP & PAPER

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HERE'S HOW to address your  
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### Interest in Arizona Plans

—Cape Town, South Africa  
Editor: In a recent issue of PULP & PAPER, a paragraph about the Arizona Pulp Paper Co. implies that a 75-ton per day newsprint and a 35-ton per day Fourdrinier board mill are economical propositions in the U.S. It has been stated that a newsprint mill should have a capacity of 100 to 300 tons to make a living. I shall be much obliged if you could get more information on this new mill, particularly the expected economy of the newsprint plant. I am also interested in the proposed use of a Fourdrinier for making board, since most new board mills on this side of the globe are multi-vat machines.

HANS BAARS

Pulp and Paper Engineer

Ed. Note: The Fourdrinier board machine is favored by many, who say it results in higher and presumably more economical production. The cylinder machine is preferred for making faced or multi-layer board. As concerns Arizona Pulp & Paper Co., here are replies from two gentlemen closely identified with that new development:

—Flagstaff, Ariz.

Editor: How big a newsprint plant has to be to make a return on the investment depends on local conditions, so it is impossible to make a general statement. A thorough study of the proposed location of such a mill would have to be made.

AMES M. POTTER,  
General Manager,  
Arizona Pulp & Paper Co.

—Fort Collins, Colo.

Editor: The minimum-sized paper or board mill for economic operation appears to be extremely variable. What could make the grade in Arizona might not meet the situation elsewhere. We have not been able to develop a reliable standard of capacity that would be generally applicable. Some factors difficult to evaluate are the human element and influence of existing plants. As operating capacity gets lower, ability of the management seems to carry more weight. Proximity of larger plants has a varying influence. In 1954 the U.S. Forest Products Laboratory estimated the minimum sized chemical pulp mill for economic operation was 100 tons per 24

hours, and groundwood, 50 tons, based on new plants.

L. A. MUELLER,  
Chief Forest Utilization Service,  
U. S. Forest Service

### R. I. P.

—West Cummington, Mass.  
Editor: The picture on the front cover of the June issue—whose funeral are they at?

A. G. BETTS

Eds. note—No funeral, but it would be sad for this industry in these highly competitive days without the skills represented by the young lady and seven gentlemen, all of serious mien, who posed for the unusual symbolic picture. They represented 4,500 employees of Minnesota & Ontario Paper Co.

### Inquiry About Straw Process

—Mexico 8, D.F., Mexico  
Editor: We are planning a mill to make cellulose from wheat straw. We know the process adopted in Europe, but are interested in knowing the one used in the U.S.A., as according to information we have, it's the best.

Administrator-General,  
Papelera Chabacano S.A.,  
Apdo. Postal 22766

### A Reply:

—Peoria, Ill.  
To our knowledge no wheat straw is used to produce cellulose pulps in the United States. Five companies, however, continue to produce 9-point corrugating board from straw. The combined consumption of straw for this purpose is about ¼ million tons per year.

To acquaint you with some of the results of research at the Northern Division, we are furnishing you literature prepared by this organization. Included are discussions on preparation of pulps, and the Mechano-Chemical process in which pulping of bulky agricultural fibers (straws, etc.) is done simply under atmospheric conditions.

T. F. CLARK,  
In Charge, Pulping and  
Mechanical Processing Unit,  
Northern Utilization Research  
and Development Div. U. S.  
Dept. of Agriculture.

**Look at the Pulp Record.** You'll see why so many of our customers have been with us so long, some over 40 years. They know the vital importance of supplies from outstanding sources, in Bleached and Unbleached Sulphite, Bleached Hardwood, Groundwood, Bleached, Semi-Bleached and Unbleached Kraft. They have the assurance of excellent service developed by over 70 years of experience. Contact us today.

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**General Outlook . . .**

IMPORTANT NEWS FOR PAPER PACKAGING. . . . Two out of every three retail food dollars are collected by U.S. supermarkets, representing less than one in ten food stores, according to Du Pont Magazine. Also good news for cellophane made from woodpulp. Accounting for only 4% of total grocery sales in 1939, supermarkets now take 62%. Even more impressive since there are only 27,000 supermarkets — a mere 9% of 310,000 grocery outlets in the U.S. Average inventory has grown from 800 items in 1930 to 6,000 today. . . .

TEN MILLION TONS IN 1959 . . . that is the outlook for newsprint, providing a "cushion" of half million tons over demand. Not too much according to industry leadership. In 1956, U.S. supply totalled 7,123,000 tons, consumption was 7,032,000, under tight conditions. Newspapers are holding stocks down, and noises from Congress for investigations are over, as was predicted. . . .

WILL SPEND \$4 BILLION FOR PLANTS . . . the recent Congressional report showing U.S. net demand for paper and paperboard will total 43,800,000 tons in 1965, an increase of 40% over 1956 production of 31,336,000 tons, will require more new mills. It is estimated four billion dollars will be needed for plants. . . .

INVENTORY ADJUSTMENTS . . . NOT LOWER CONSUMPTION account for slackening in demand for paper and board, according to the latest "Pulp, Paper and Board Industry Report" published by the Dept. of Commerce. . . .

CONVERTERS MAY INCREASE SALES FOR 1957 above last year, the report states. Estimates for the current year point to increased percent of retail dollar sales. Wholesale trade rose 4% in first four months of '57 above same period in '56. . . .

FIBER ECONOMY IN BEST CONDITION IN HISTORY, says James L. Ritchie, U.S. Pulp Producers Assn. exec. secy. He told the second annual Institute of Paper Chemistry summer seminar that since WW II no basic segment of American industry has had a more satisfactory record of solid achievement, he said. By modifying expansion plans and licking the raw material supply problem, it should be in far better position than ever before to withstand adversity. . . .

PACKAGING INDUSTRY GREW FIVE TIMES as fast as the rate of population growth since 1939. Almost twice as much packaging material is used today as before WW II. Estimates show that on the average every man, woman and child in the country spent \$88 for packaging in 1956. . . .

EXPECT 14 BILLION PAPER MILK CARTONS IN 1957, continuing the growth from 1 billion units in 1939 to 13 billion in 1956. Containers for foods other than milk are expected to account for an additional billion unit in 1957. . . .

BECAUSE OF RISING COSTS . . . sales up, earnings down for first half of 1957 compared to 1956 is the report from Crown Zellerbach Corp., Scott Paper Co., The Mead Corp., Fort Wayne Corrugated Paper Co., Carpenter Paper Co., St. Regis Paper Co., Union Bag-Camp Paper Corp., Container Corp. of America, Rayonier, and Nekoosa-Edwards, among many others. . . .

Please turn page for more



**Mills and Mill Plans**

IP MILL ON COAST IS LIKELY . . . now that International Paper's merger with Long-Bell Lumber has FTC approval. Harlan Shope, IP's expert on water and effluent, is directing surveys in Wash., Ore., and northern Calif. Gardiner, a town on the south Ore. coast, is regarded as most probable site. IP must dispose of Longview Fibre stock worth \$10,000,000 in present market, under terms of the settlement. The stock was carried on Long-Bell's books at cost of \$8,000. . . .

ACQUIRES BIG HOLDINGS IN WEST . . . A major timber company of the Far West was merged with St. Regis when it acquired St. Paul & Tacoma Lumber Co., owners of 133,700 acres of fir and hemlock lands, a sawmill in Tacoma, Wash. and plywood plant in Olympia, Wash. Chairman Roy Ferguson previously said the J. Neil Lumber Co. merger is capable of sustaining a St. Regis pulp and paper mill in Montana and possibly another one in Washington (story in this issue). . . .

U.S. PLYWOOD CORP. MAY BUILD PAPER MILL . . . S. W. Antoville, pres., says the company is making studies to determine best location for a mill and type of paper products, for maximum use of timber resources.

NEXT STEP: BLEACHED KRAFT PULP AND PAPER MILL . . . Gen. Lucius D. Clay, chairman, Continental Can Co., told a New York paper that construction of another Southern bleached kraft pulp and paper mill is the "next logical step." But no go-ahead decision has been made. Continental has acquired a number of site options. It brought holdings of forest lands to one million acres when it acquired Robert Gair. . . .

TO BUY RACQUETTE RIVER MILL, EXPAND IT . . . Nekoosa-Edwards Paper Co., will build pulp bleaching plant, process water treatment plant, transfer a paper machine from its Nekoosa mill and modify present machines at Racquette River Paper Corp., Potsdam, N.Y., when present negotiations to buy the latter mill are concluded. . . .

\$40,000,000 MILL FOR NOVA SCOTIA is announced by the provincial government and newly organized Nova Scotia Pulp Co., to use timberlands previously leased to Oxford Paper Co. The Swedish firm Stora Kopparberg Ltd. will supply technical advice (story in this issue).

SITE CLEARING FOR BRITISH COLUMBIA MILL . . . Celgar, Ltd., Canadian subsidiary of Celanese Corp. of America, retained Howard Simons, Ltd., as consultants for building bleached sulfate mill on the Columbia River near Castlegar, B.C. Site clearing is under way. . . .

HARDBOARD MACHINE IN SOUTH . . . Johns-Manville, Natchez, Miss., plant will start up a single-width, 50-in. Black-Clawson machine with yearly capacity of 60 million sq. ft. late this year.

SOUTHLAND STARTS EXPANSION . . . Pres. Ernest L. Kurth, pres. of Southland Paper Mills, Lufkin, Tex., announces a new 270-in. Pusey & Jones paper machine will add 90,000 tons to annual newsprint capacity. Will take over a year to finish. . . .

Please turn page for more



# C-132 chain resists shock, abuse in woodyard service



## "File-hard" Promal chain built to combat abrasive wear

The grueling day-in, day-out punishment of pulpwood conveying requires the added strength and greater wear resistance offered by Link-Belt's "file-hard" Promal C-132 chain. It's specifically designed to stand up under impact and abrasive abuse.

The "file-hard" surface of this durable Link-Belt chain helps minimize conveyor shut-downs, replacement and maintenance costs. In addition, the

structural uniformity of Promal—its high yield point and ultimate strength—provides resistance against distortion.

This rugged combination chain consists of Promal cast center links and steel sidebars connected by steel pins which are locked against rotation. Its broad top and bottom surfaces resist sliding wear. And Link-Belt's many attachments adapt this chain to specific conveying applications.

## Special hardening available for highly abrasive conditions



**SPECIAL HARDENING** protects chain and attachments from abrasive wear under severe conditions like those shown above

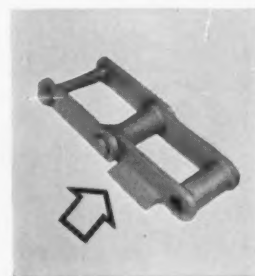


**K-9 ATTACHMENTS** on Link-Belt C-132 combination chain absorb impact from pulpwood logs, extending conveyor life.

## K-9 attachment extends wear-life of C-132 chain

Broad sliding surface of K-9 attachments protects Link-Belt C-132 combination chain against impact from falling logs. Sturdy wear shoe (right) absorbs shock and transfers it to track, minimizing stress on chain joints.

Popular for both conveying and elevating, C-132 chain combines cast center links with steel sidebars connected by steel pins . . . offers high strength and full bearing area. Broad tops and bottoms provide long sliding surfaces for drag conveyors.



Newly developed specially hardened Link-Belt chains and attachments have proved that there's no need to go to more costly cast alloy steel chains for highly abrasive service. See your Link-Belt representative or authorized stock carrying distributor for specific information. He will gladly show you where special hardening fits your requirements.

**HEADQUARTERS** for chains, sprockets and other Link-Belt conveying and mechanical power transmission products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor.

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# LINK-BELT

**CHAINS AND SPROCKETS**

14, 283

PULP MILL IN COLORADO DROPPED. . . . J. J. Rogers Co., Au Sable Forks, N.Y., abandons project. USFS will readvertise 3,000,000 cords of beetle-killed spruce for sale. . . .

CHAMPION EXPANSION FOR 1958 includes additions to slush pulp system and cast coating equipment, and improvements to several paper machines at Hamilton, O. Major projects at Canton, N.C., are a new pine pulp washing, screening and bleaching system, improvements to pulp mill, and a new paper machine scheduled for 1959. At Pasadena, Tex., a new recovery unit and rebuilding of a machine will be completed. . . .

ACQUIRES NEWFOUNDLAND TIMBERLAND. . . . 9,500 sq. mi., worth \$176,000,000 when developed were bought by a mining company, Canadian Javelin Ltd., which said it might build a pulp mill. . . .

KRAFT BLEACH PLANT STARTS. . . . Crown Zellerbach Canada's new \$1.9 million 175 ton Elk Falls, B.C., bleach plant starts up. A \$15 million kraft mill and modern sawmill are nearing completion. A machine-room extension will house a newsprint-kraft paper machine this year. . . .

\$1 MILLION FOR CONTAINER PLANT. . . . This is for expansion on The Flintkote Co.'s San Leandro, Calif., container plant, according to Pres. Perce C. Rowe. . . .

FELT MACHINE STARTS UP. . . . Ruberoid Co. started up a new Black-Clawson cylinder machine at Savannah, Ga. A Black-Clawson felt machine for the Ruberoid Gloucester, N.J. mill is being built. . . .

PRODUCTION TO GO UP 40% when No. 3 newsprint machine, acquired secondhand in the U.S., is installed at Donohue Bros., Clermont, Que. The firm now has timber limits of 1,200 sq. mi.

#### **Other News—**

100,000 ACRES IN TIMBERLAND TRADE between Weyerhaeuser Timber Co. and Deltic Farm and Timber Co., subsidiary of Murphy Corp., El Dorado, Ark. Weyerhaeuser exchanged 50,000 acres of recently acquired 63,000 in Ark. for 45,000 acres of Ala. and Miss. lands. Deltic paid cash for Weyerhaeuser's remaining 13,000 acres in Ark. . . .

DIVISION OF FORESTS REQUESTED. . . . Simpson Redwood Co., Simpson Timber subsidiary, asks Portland, Ore., federal court to divide the 20,000 acre tract, called the finest old-growth Douglas fir stand in Oregon remaining in private ownership. Value is estimated at \$50 million. Simpson, Sewall Avery, Chicago industrialist, and his brother Waldo A. Avery, are major owners. . . .

DISSOLVED OXYGEN GAIN ACHIEVED at Flambeau Paper Co. power station, by whipping air into water inside electric turbines. Sampling discloses a positive oxygen pick-up ranging from 0.3 to 1.0 part per million parts of water passing through a reaeration turbine. . . .

WESTINGHOUSE EXPECTS RECORD SALES IN 1957 . . . Gwilym A. Price, chairman and president of Westinghouse Electric Corp., says prospects are bolstered by predictions that the nation's over-all output of goods and services in 1957 will continue the better than 3% annual increase in recent years, to reach \$420 billion.

## Values You Can't Specify



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In the fabrication and erection of every high pressure and/or high temperature piping installation, there are intangibles important to the success of the job . . . things that cannot be spelled out in the specifications but are essential to getting superior piping at an economical price.

Important among these is the experience of the fabricating and construction organization . . . experience on all kinds of projects so that the possibilities and limitations of all piping materials are well understood. Midwest has fabricated and erected the piping on many critical jobs . . . including numerous atomic energy projects and Kyger Creek (the largest steam power plant ever handled completely by one piping contractor).

Another is a questioning attitude . . . a frame of mind that habitually asks (before the job is placed in the shop for fabrication): "Have the pre-fabricated sub-assemblies been so planned that the field work is minimized and simplified as much as possible?" Highly skilled Midwest piping engineers carefully analyze every job with this question in mind.

For power plant or process, the customer gets the most for his money when he buys Midwest Piping.



Main steam piping at Kyger Creek Plant which has a capacity of 1,075,000 kw and is the largest power plant piping contract (combining fabrication and erection) ever performed by a single contractor.

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**Plan Another Australian Mill**

Melbourne . . . A new pulp and paper mill in the southeastern part of South Australia is planned. Australian Manufacturers Ltd. of Melbourne and Cellulose Australia Ltd. of Adelaide plan to form a new company to control the mill. Pulpwood would come from government forests. Representatives now touring U.S.A. to inspect equipment, were visiting semi-chemical pulp mills in Wisconsin, Michigan and elsewhere. They expressed particular interest in new mechanical barkers, chippers, etc.

**Soviet Machines Criticized**

Moscow . . . At a recent Soviet paper machinery conference here it was stated that Soviet paper machinery is "less than satisfactory." The machines are too slow, wasteful and generally poor in performance, according to the report. The conference passed a resolution demanding that experience abroad (meaning Western "capitalist" experience and techniques) be studied closely.

**New Effluent Treatment Plant**

Maidstone, Kent, England . . . A new effluent treatment plant installed in two adjoining mills of the Reed Paper Group at Maidstone features a biological treatment unit believed to be the only one of its kind in the British industry. The two mills produce about a third of the strawpaper made in England. The new plant separates finely-divided pulp fibers to return into the papermaking system as well as purifying the water. Domestic sewage is pumped into activated sludge tanks to provide the necessary life and food for biological action and compressed air is blown through to promote oxidation. The bacteria and other organisms break down the polluting matter.

**World Forestry Congress**

Madrid . . . The Council of FAO, United Nations, meeting here recently, gave approval to holding the Fifth World Forestry Congress in the United States in 1960. The site proposed would be in the state of either Washington or Oregon. Regional tours will provide opportunity to observe technological advances. Past Congresses have been held in Rome in 1926, Budapest in 1936, Helsinki in 1949 and India in 1954. Meetings are composed of individuals rather than

of government representatives and responsibility for arrangement rests with the host country.

**Rice Paper Mill for Egypt**

Cairo . . . The Egyptian government plans to set up an \$11,500,000 mill which will make paper from rice straw and reeds. It is reported that part of the equipment will be imported from Communist bloc countries.

**Vietnam May Get Mill**

Saigon . . . A group of Vietnamese businessmen have formed the Societe des Papeteries du Vietnam seeking capital to exploit forests in the central part of the country. American, Japanese and French interests are investigating the possibility of making pulp and paper in Vietnam. An American firm recently conferred with Vietnamese representatives on a proposal to build a 66,000 ton per year newsprint mill. About 40,000 tons would be available for export.

**Plant to Use Hemp for Pulp**

Vivion-Beaumont, France . . . An experimental pulp and paper mill, using vegetable products other than wood, will go into operation soon at Vivion-Beaumont in the Sarthe. The first material tested will be hemp. If successful, the Ministry of Agriculture will encourage hemp cultivation in Flanders, Alsace and Brittany. Other pulp sources to be tried are sorghum and little pine shoots from the Landes district below Bordeaux.

**Larch for Pulpmaking**

Stockholm . . . The Swedish Cellulose Co. is planting larch trees on a 50-acre area as part of an experiment to use it for making pulp. Larch yields a larger volume of pulp per cubic foot than spruce and pine, is more resistant to disease and insects and grows more rapidly in suitable soils. One disadvantage is that it cannot be floated. First cutting in the new area is expected to be made in about 25 years.

**Paper Shortage in Far East**

Bandung, Indonesia . . . A 20-nation Asia-Pacific Forestry Commission which met recently at Bandung reports that dwindling supplies of pulp, paper and board and steadily increasing demand for them threaten the economic progress of Asian countries.

Delegates discussed the possibility of stimulating their governments to step up or begin production in their own countries.

**Burma Mill Uncertain**

Chicago, Ill. . . . Albert D. Hattis, vice president, Robert E. Hattis Engineers, Inc., reports that to his knowledge no progress has been made on the proposal to build a bamboo pulp and paper mill in Burma. Based upon information in the U.S. Department of Commerce Bulletin, the project is apparently being stalled by a shortage of capital. "I am personally completely unfamiliar with the Burma political situation," Mr. Hattis said. "In this changing world, anything could happen, and for all we know, the project might proceed in the future with us or with some other firm."

**Credit for Venezuelan Mill**

Caracas . . . The Export-Import Bank of Washington granted a \$3,500,000 credit to finance purchases in the U.S. of machinery and equipment for a new paper mill which VENEPAL (Compania Anonimo Venezolana de Pulpa y Papel) is constructing near Puerto Cabello to manufacture industrial paper and products. Purchases include electrical distributing equipment mainly from Westinghouse International; water treatment plant from Dorr-Oliver, Inc. and cranes from Harnischfeger Corp.

**New Director of KMW**

Karlstad, Sweden . . . Bo G. Rathsmann succeeds G. Brolin as managing director of AB Karlstads Mekaniska Werkstad.

**Will Build Slush-Makers**

Sheffield, Eng. . . . Morden Machines Co., Portland, Ore., U.S.A., recently licensed Millspaugh Ltd., Sheffield, Eng., to build and sell the Morden Slush-Maker in Europe and British Commonwealth (exclusive of Canada). The English firm had previously been authorized to produce and market the Morden Stock-Maker, for beating, and Stuff-Maker jordaning equipment. Since 1946 Millspaugh supplied 100 mills in 18 countries with over 400 Stock-Makers. Until now the Slush-Makers have been manufactured only in U.S.A. Some 75 of these units have been installed in 50 mills of six countries.



Dryer section of Rice Barton paper making machine installed at Crane and Co., Dalton, Mass. This is one of three similar Rice Barton dryer sections which have given trouble-free service at this company since the initial installation in 1955.

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### New German Techniques For Mill Effluents . . .

Pulp and papermaking techniques are vitally dependent on availability and successful management of water. Until totally different approaches, such as air deposition of fibrous mats, might change this general aspect, the industry must continue to rely on advances in waterhandling technology for significant progress.

For this reason, PULP & PAPER has selected for this month's World Technical News Page a number of recent developments which center around the preparation, recirculation, and disposal of supply water. The problem is rather complex, involving not only technological but also economical and legal questions, particularly with regard to effluent disposal and spent-liquor recovery.

This month's selections are taken from German technical literature, including one doctoral dissertation. This is not, however, intended to mean that other countries are less concerned with the water problems of the industry.

PULP & PAPER presents these selections with permission of The Institute of Paper Chemistry and with assistance of Curtis L. Brown, editor of the Bulletin of the Institute. Photostats and/or translations of the original reports may be obtained from Eugene Bunker, librarian, The Institute of Paper Chemistry, P. O. Box 498, Appleton, Wis.

BY CURTIS L. BROWN

#### Fuel Use of Sulfite Liquor . . .

SCHIFFEL, HANS-WOLFGANG. Contribution to preparation of fermented, dealcoholized spent sulfite liquor. Doctoral thesis. Technische Hochschule [Institute of Technology] Munich, Germany, 1954. 142 p. [In German] Bull. Inst. Paper Chem. 27: 1287.

The physical and heat-technological properties of spent sulfite liquor (I) are reviewed. Theory and practice of (I) concentration and combustion are surveyed, including the prevention and removal of scaling, optimum cleaning schedules, and most favorable number of evaporator steps. Efficiency and economy of drying (I) to 95% solids depends largely on heat requirement of evaporator installation. Because the Ramen process, using high-quality heat at 1200°C., was considered uneconomical for drying a waste product, a modification of the Kuhles spray-drying process, using flue-gas heat at 300°, was investigated on semitechnical scale. Direct washing of gas stream with pre-evaporated cooled thin liquor was found feasible for recovering part of the flue-gas heat and part (10%) of the dried (I) powder. Among three combus-

tion methods studied, burning of the spray-dried (I) with addition of 20% coal dust in a smelt-combustion chamber was found most profitable.

#### Preparing Pulp Mill Water . . .

FOULON, A. Wochbl. Papier-fabrik. 84, No. 13: 517 (July 15, 1956). [In German] Bull. Inst. Paper Chem. 27: 1293.

Practical experience has shown that the Guldager electrolysis system eliminates both oxygen and carbon dioxide from supply waters and thus prevents corrosion and scaling in water-circulating installations. An aluminum or iron anode polarizes the negatively ionized dissolved oxygen and precipitates it as aluminum or iron hydroxide. The precipitate occludes and coprecipitates other impurities and mixes with simultaneously precipitated lime particles to form a gel-type sludge on bottom of electrolysis tank. The system is claimed to be easy to operate, economical, and to have almost indefinite service life.

#### Reducing Effluent . . .

KNEPPER, ARIE. Is fresh-water restriction profitable? Allgem. Papier-Rundschau no. 18: 950-2, 954 (Sept. 20, 1956). [In German] Bull. Inst. Paper Chem. 27: 1293.

By means of typical calculations, the author examines whether reduction of effluent waters by recirculation of white water actually decreases stream pollution. He points out that chemical purification, e.g., by humic acid, is more effective the more concentrated the effluent and concludes that a reduction of waste waters by recirculation without chemical purification has merits (for reduced stream pollution) only if the amount of effluent water is less than 10 cu. m./ton of paper produced. 2 figures.

#### Treating Waste Paper Effluent . . .

NOACK, WERNER. Wochbl. Papier-fabrik, 85, no. 3: 83-4 (Feb. 15, 1957). [In German] Bull. Inst. Paper Chem. 27: 1293-4.

The effluents of three waste-paper mills were analyzed, and various methods of purification were investigated. A combination of several tests is needed to characterize mill effluents—external nature, sedimentable materials, pH, dry solids, suspended materials, oxygen content, permanganate consumption, 5-day B.O.D., and microscopical picture. Mechanical purification was unsatisfactory, and biological methods appeared of doubtful value because of the danger of sludging. Chemical purification trials on laboratory scale indicated that individual additions of humic-acid, iron sulfate, or iron chloride were of little value. Addition of alum caused colloids and suspended matter to settle and thus clarified the effluent but did not reduce permanganate consumption sufficiently. The Pista process (flocculation with ferric sulfate and calcium hydroxide; cf. B.I.P.C. 26: 935) seemed to hold the greatest merit. Flocculation and sedimentation for 20-25 min., using iron salt and a saturated lime solution, purified waste water and

reduced permanganate consumption by 50-70%. Difficulties caused by strong foam formation in the Pista apparatus were experienced in one of the mills, but remedial measures appear possible. These results re-emphasize the impossibility of arriving at a generally valid effluent-clarification method. Individual mill conditions, such as fresh-water pH, determine not only the optimum technical approach but also the economy of purification methods.

#### Accelerator Experience . . .

SONTHEIMER, H. Wochbl. Papierfabrik. 84, no. 14: 565-6 (July 31, 1956). [In German] Bull. Inst. Paper Chem. 27: 1294.

The Accelerator process for purifying mill effluents combines advantages of chemical flocculation (using iron sulfate and lime or related cheap chemicals) and sedimentation. It is suitable for recovering colloidal materials, pigments, dye-stuffs, and other particles too small to be affected by pure sedimentation. It requires a relatively small installation and produces a purified waste liquor which is suitable for recirculation and re-use. It can also be used for simultaneous preparation of fresh supply water (softening). Technical details of an Accelerator installation are described.

#### Analyzes Sedimentation Methods .

WILFINGER, H. Wochbl. Papierfabrik. 84, no. 9: 337-8 (May 15, 1956). [In German] Bull. Inst. Paper Chem. 27: 1294.

Principal advantage of sedimentation processes is their nearly foolproof operation with little control. Disadvantages, as compared with flotation processes include relatively high amount of water to be stored, resulting danger of algal and slime growth, and loss of considerable amounts of solid matter when paper colors and grades are changed. Various types of settling basins, conical filters, stuff catchers, and save-alls and the effects of water and operating variables (solids content, pH, temperature, chemical additives, etc.) on their recovery efficiency are discussed.

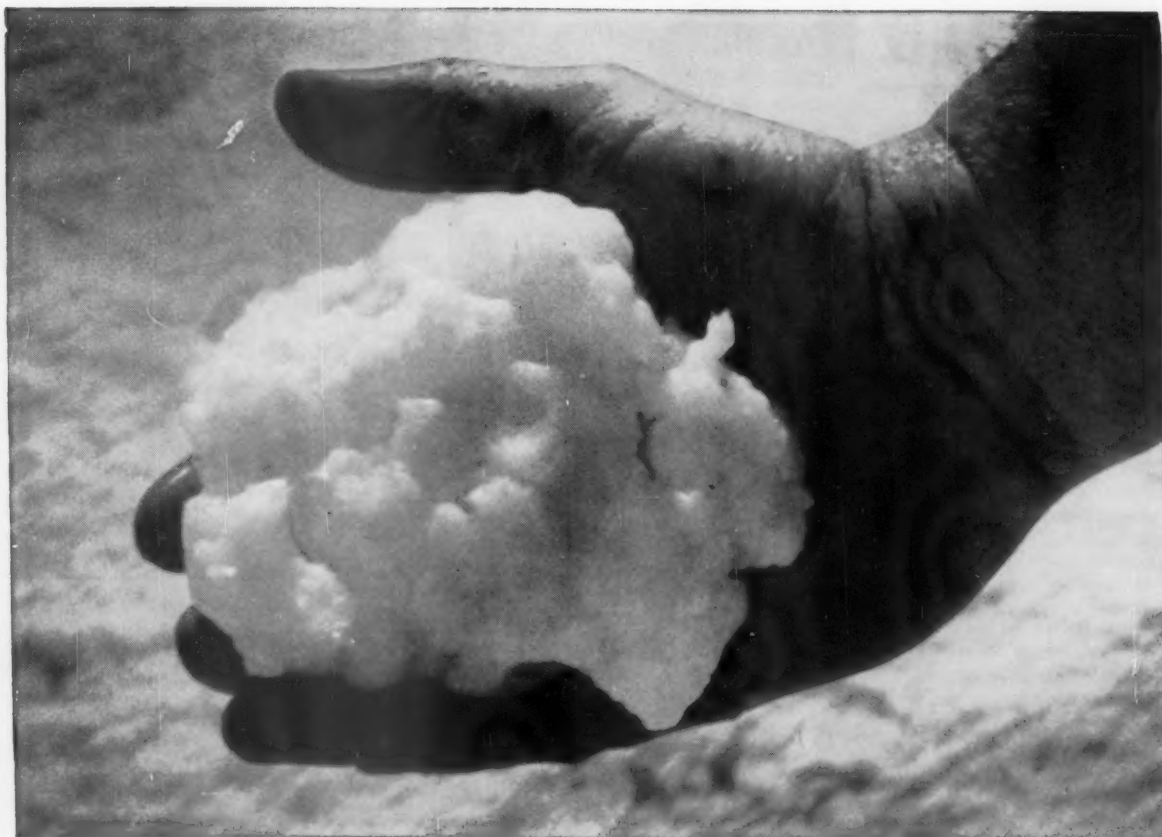
#### Water Flow Through Wire . . .

BERGSTRÖM, J., and SREENBERG, B. Stock surface curvature above table rolls. Svensk Papperstidn. 60, no. 7: 264-8 (April 15, 1957). [In English; Swedish and German summaries] Bull. Inst. Paper Chem. 27: 1134.

The rate of water flow through the wire at different points along the paper machine wire is calculated from the curvature produced in the stock surface above the table rolls. The shape of the curvature is determined optically, by reflectance, and it is recommended that the method be used only on calm, reflecting, slow-moving stock surfaces, 10 figures and 1 reference.

F.J.L.





Photograph of Western Hemlock pulp bleached snowwhite at world's largest specialty paper mill—The Camas Division, Crown-Zellerbach Corporation.

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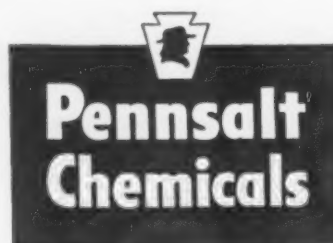
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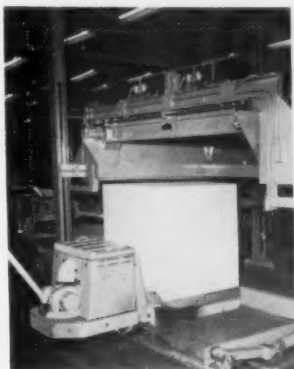
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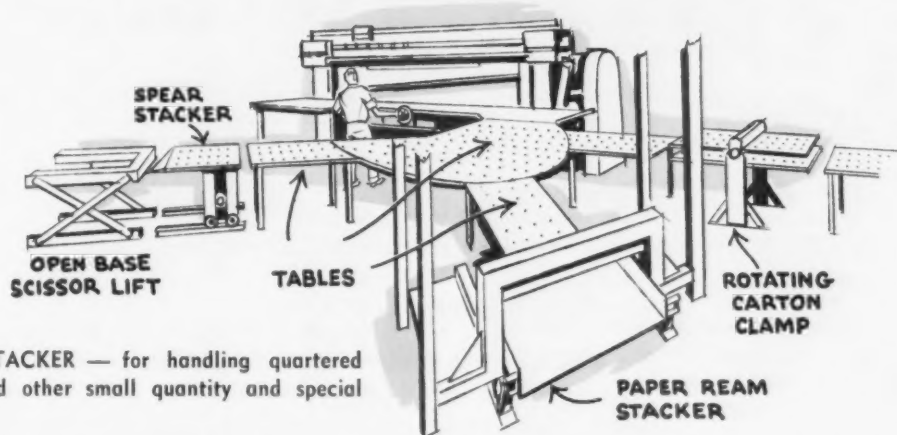
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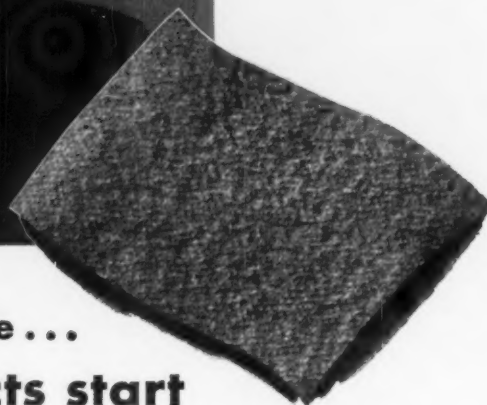
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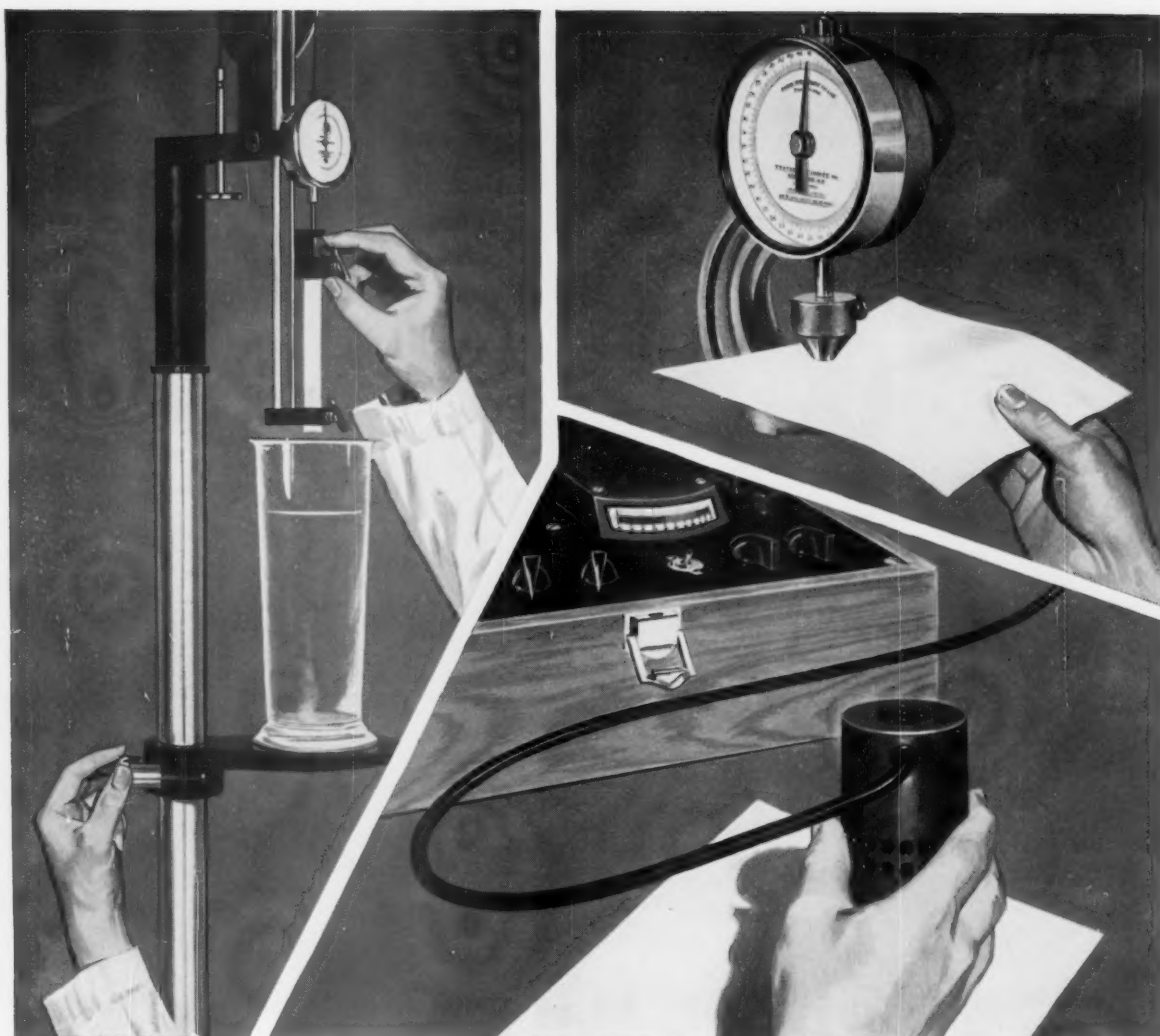
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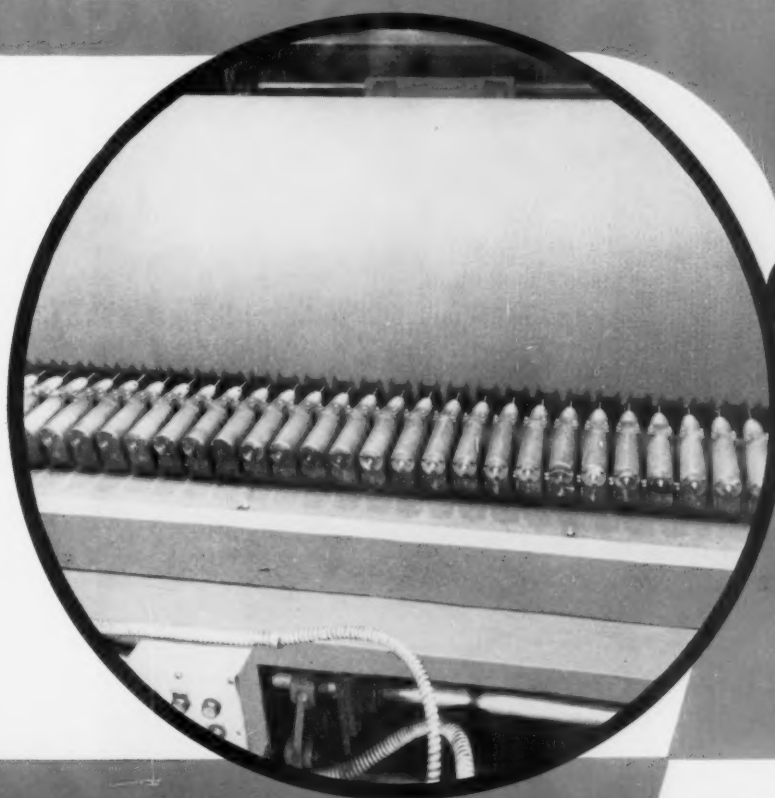
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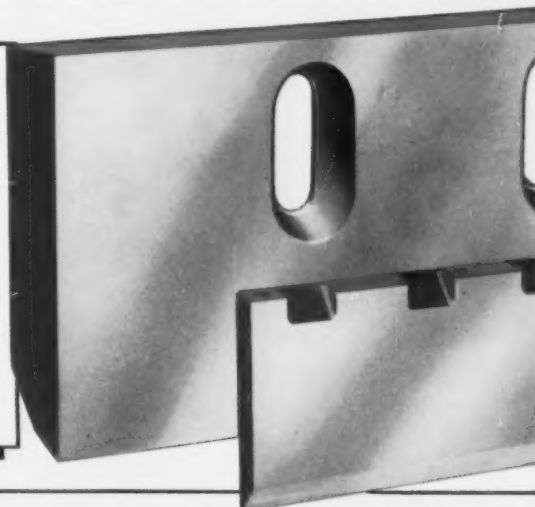


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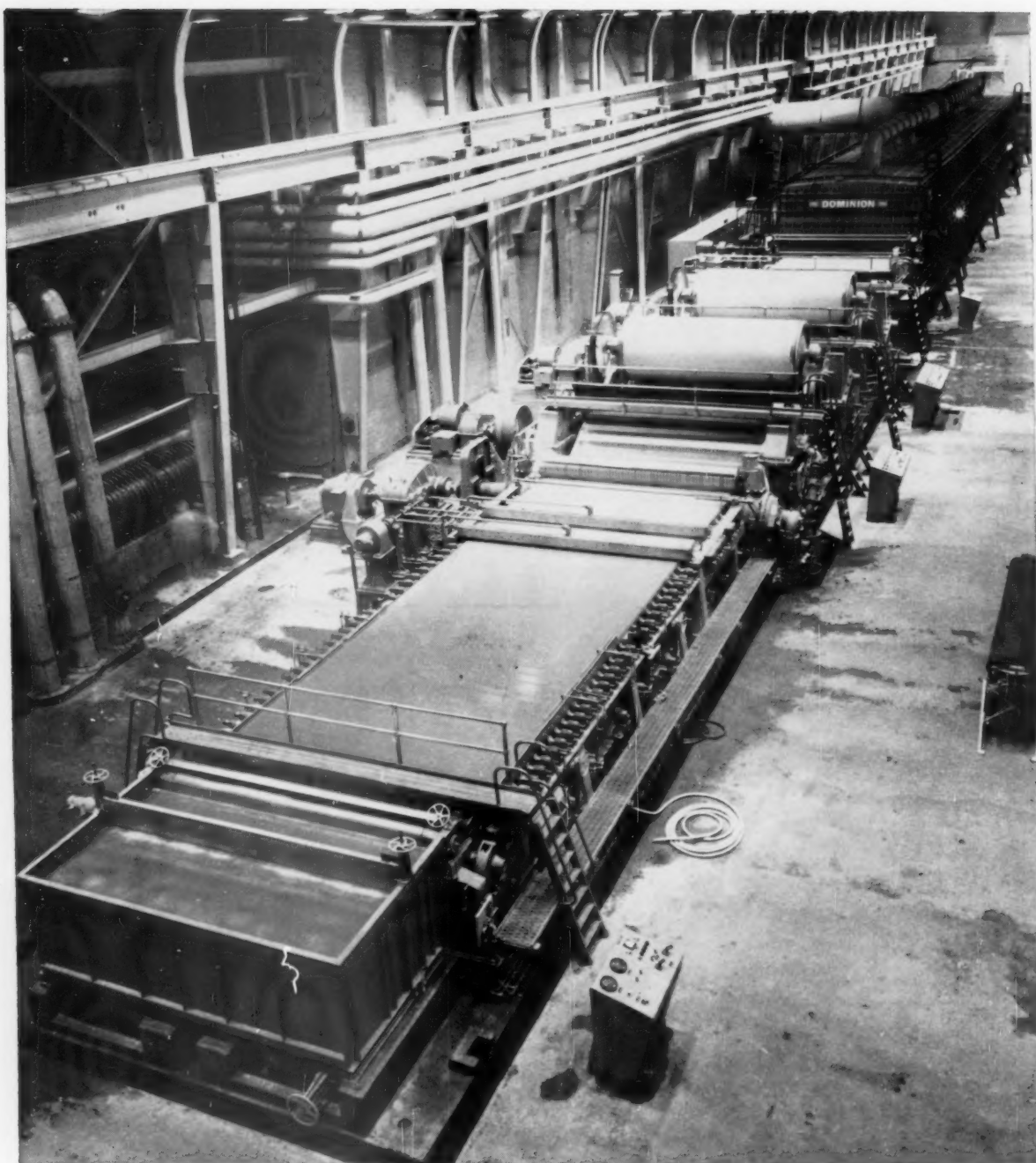
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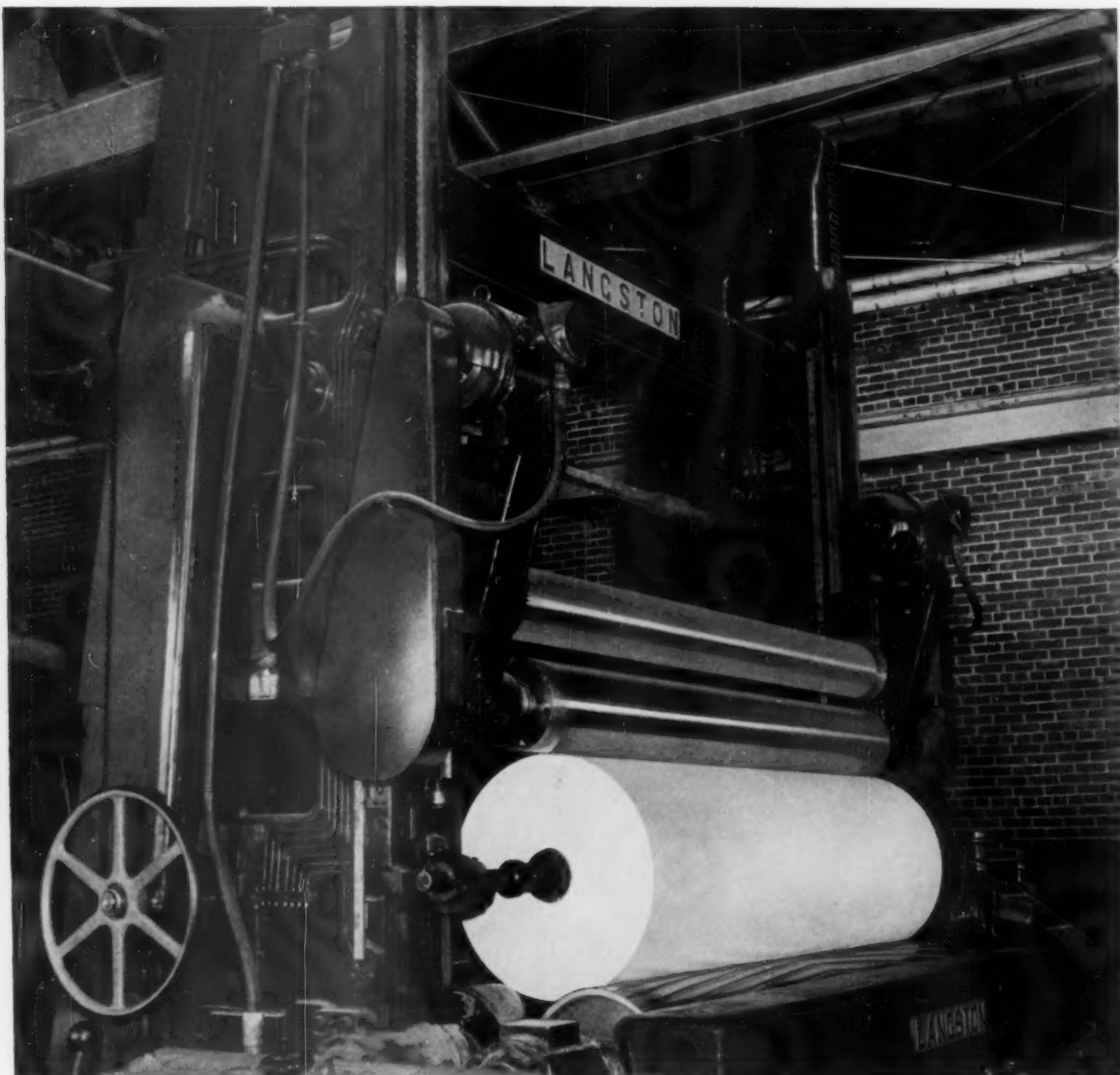
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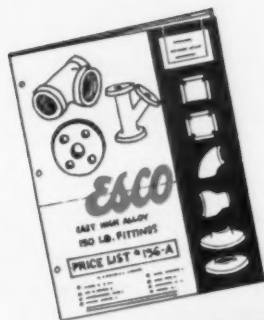
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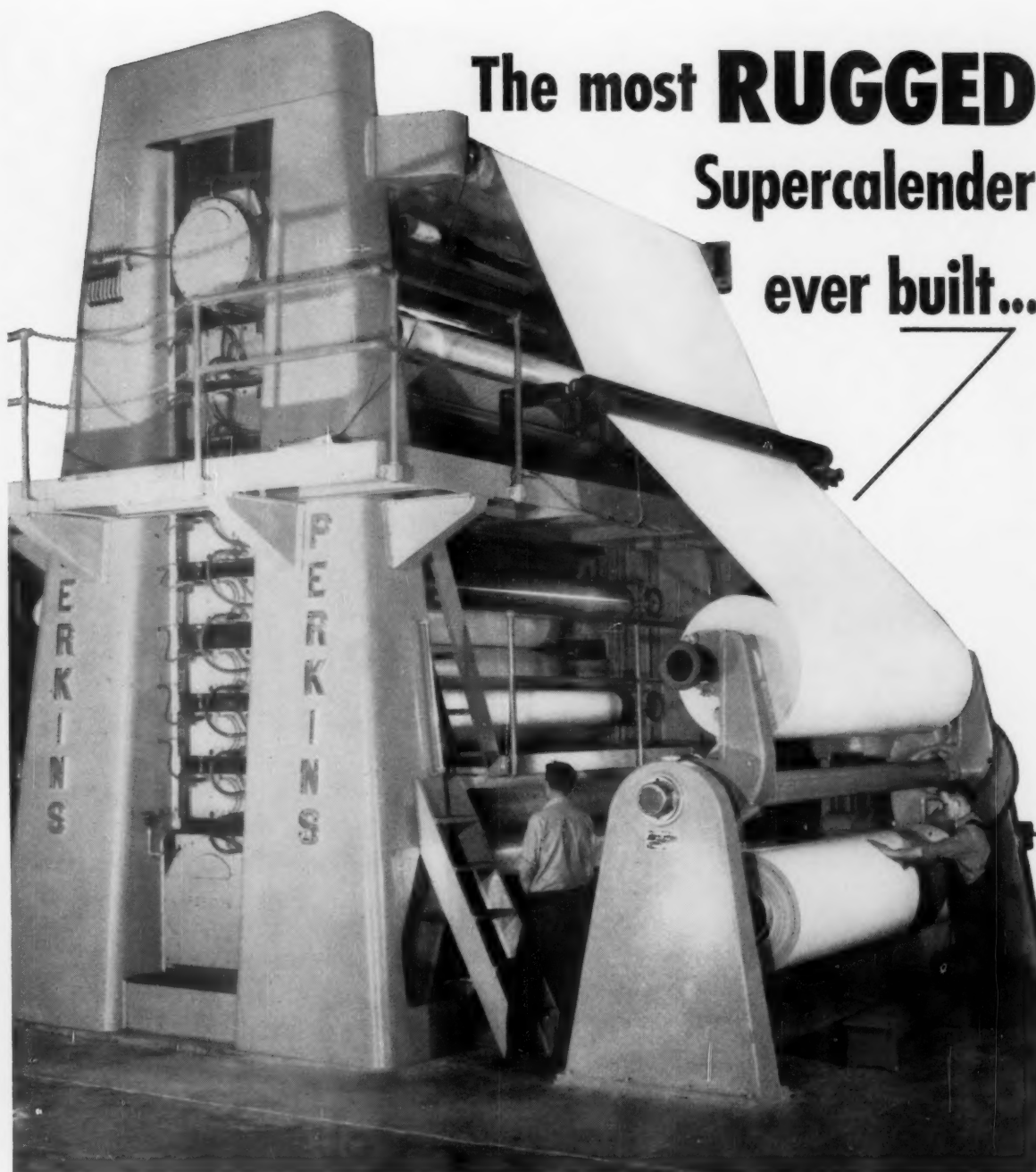
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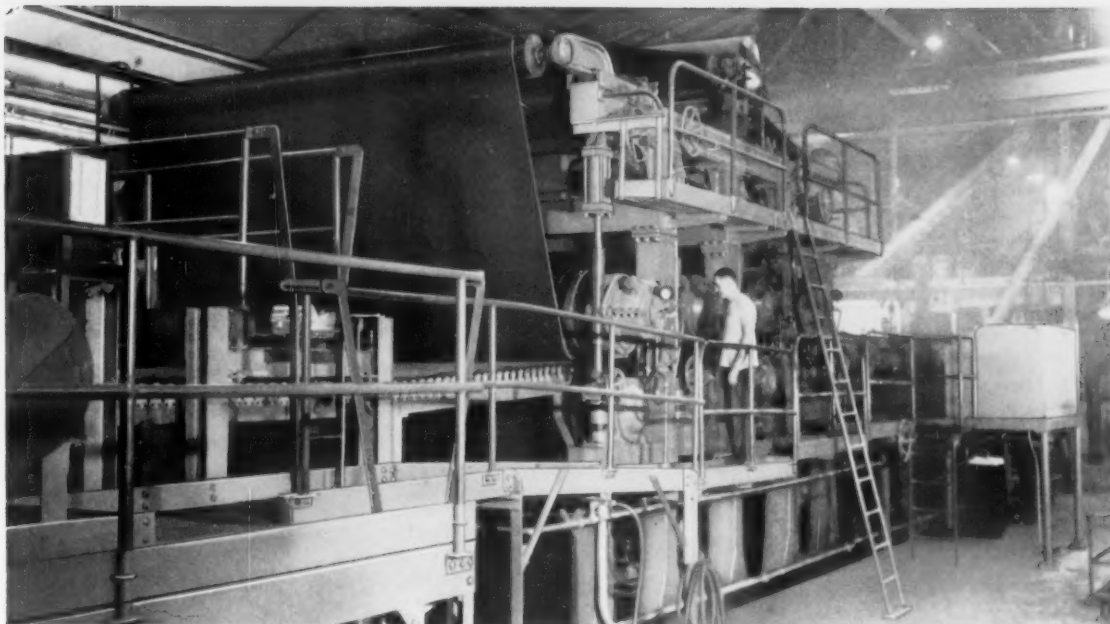
Nearly 16 million sq. ft. of wet process structural board for the building industry can be produced every day on Black-Clawson machines in operation in the United States.

This is 85½ % of the total 18 million sq. ft. per day designed capacity of all machines in this country.

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National Gypsum Company  
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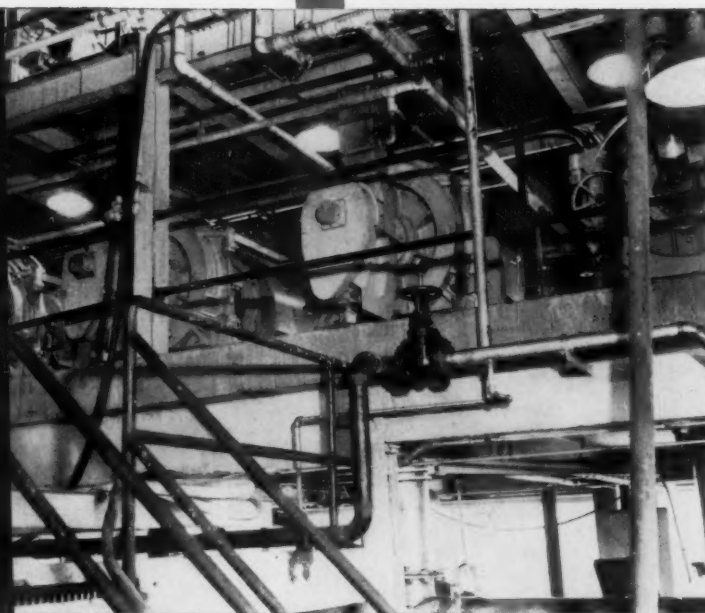
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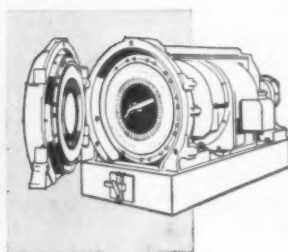
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**STARTUP**—Albany's Service Engineers work with machine builders and mill personnel on new machine planning and startup to assure minimum of felt problems. Above: Glatfelter's paper mill superintendent Jack Miller, J. E. Serrine Co's A. M. Perdue, gen. supt. George H. Glatfelter, and Albany's Chief Service Engineer Larry Woodside discuss startup problems of new Glatfelter suction-transfer machine.



**OPERATION**—Albany Service Engineers analyze machine conditions to help improve felt performance. Above, Larry Woodside checks felt measurement between presses. **TROUBLE SHOOTING**—Below, Walt Willetts, typical of Albany's Service Engineers, travels nearly 75,000 miles each year to provide on-the-spot service.



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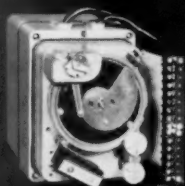
# ALBANY

## FELT COMPANY

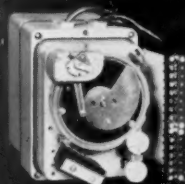
Main Office & Plant, Albany, N.Y. Other plants: Hoosick Falls, N.Y.  
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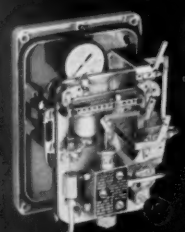
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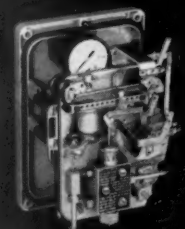
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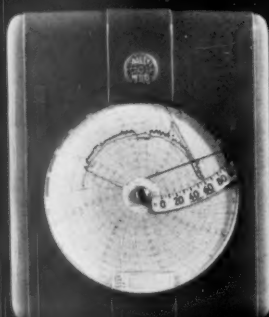
Controlling  
Unit for  
Variable 1



Controlling  
Unit for  
Variable 2



Units added to  
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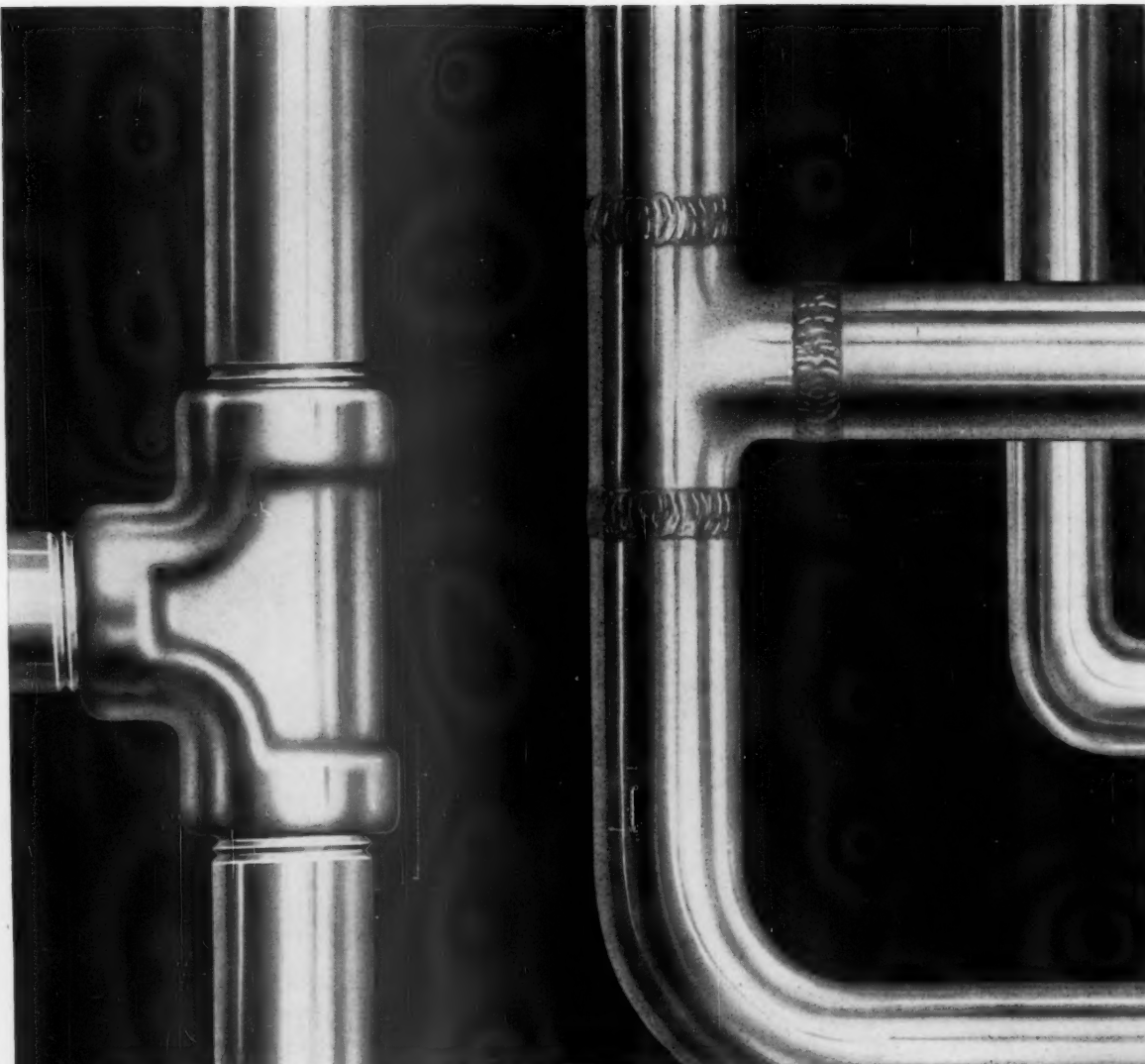
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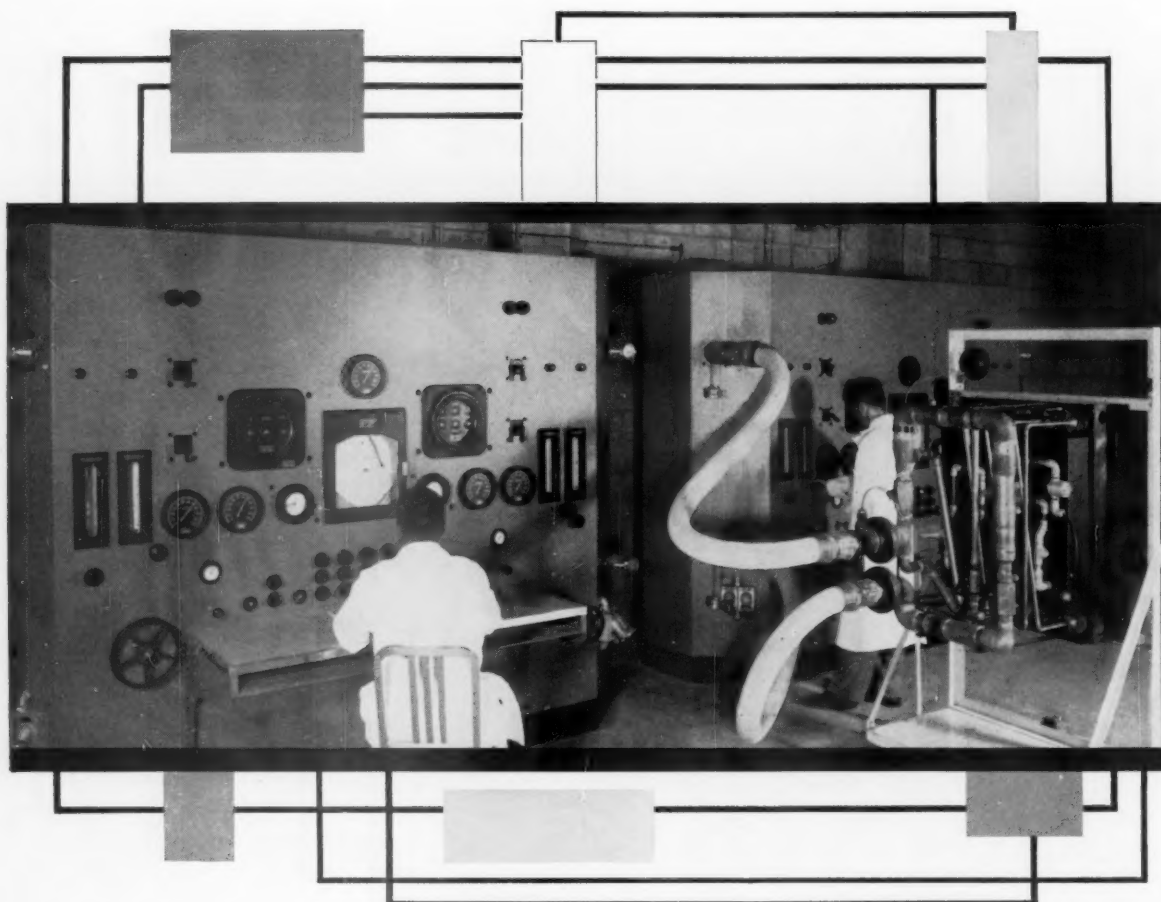
	All Wax Acid Stable Nopco 1055 Series										Rosin-Wax Acid Stable Nopco 1155 Series				All Wax Alkaline Stable Nopco 1255 Series			Nopco Special Series			
	A	B	C	F	K	L	M	N	W	X	A	B	C	L	A	M	X	1245A	2252	KKE	KKE-1
Improved Finish	✓	✓	✓		✓	✓		✓		✓	✓				✓		✓	✓	✓		
Improved Fold	✓		✓				✓			✓					✓	✓	✓		✓		
Improved Calendar Staining	✓									✓					✓		✓				
Oil Resistance							✓						✓			✓				✓	✓
Ink Resistance		✓	✓							✓		✓		✓			✓	✓	✓	✓	
Blood Resistance		✓					✓			✓				✓			✓	✓	✓		
Lactic Acid Resistance				✓				✓					✓								✓
Hot Liquid Resistance								✓						✓							✓
Grease Resistance		✓	✓				✓			✓											
Scuff Resistance		✓	✓				✓		✓	✓		✓	✓								✓
Printing Qualities	✓	✓			✓					✓	✓	✓	✓		✓		✓	✓	✓	✓	
Starch Coating Lubricant	✓	✓			✓					✓					✓		✓	✓	✓		
Decrease Fuzz	✓	✓				✓				✓					✓		✓	✓	✓		



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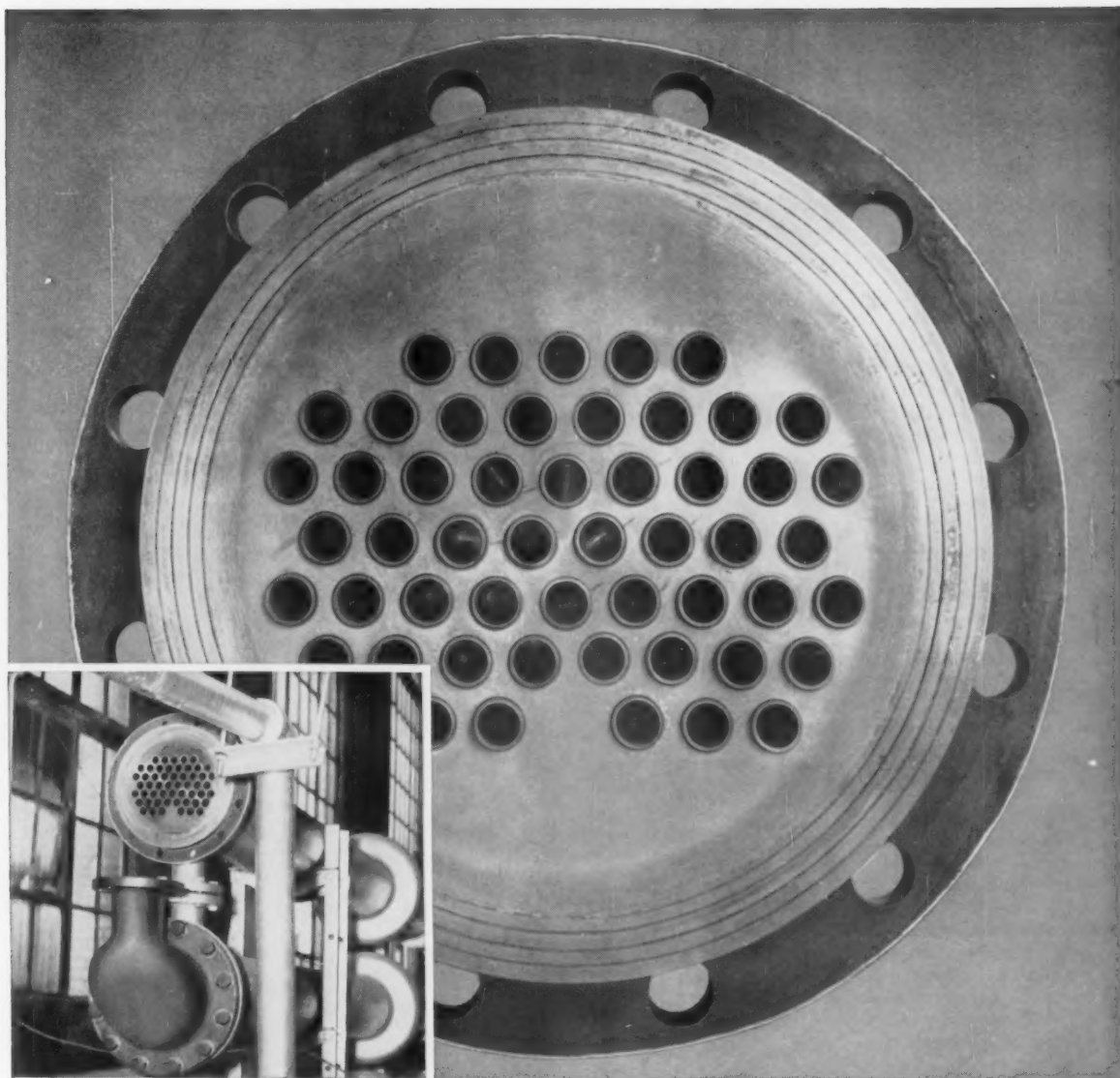
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PULP & PAPER — September 1957

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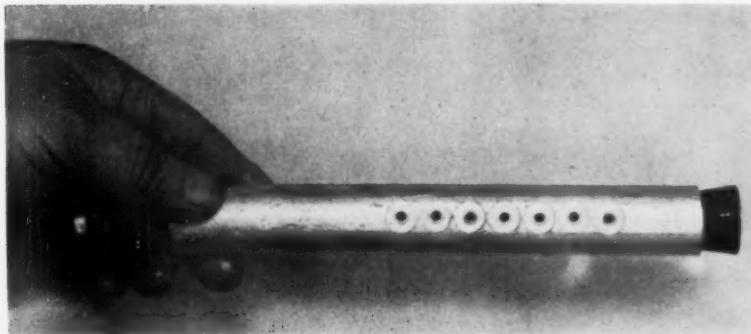
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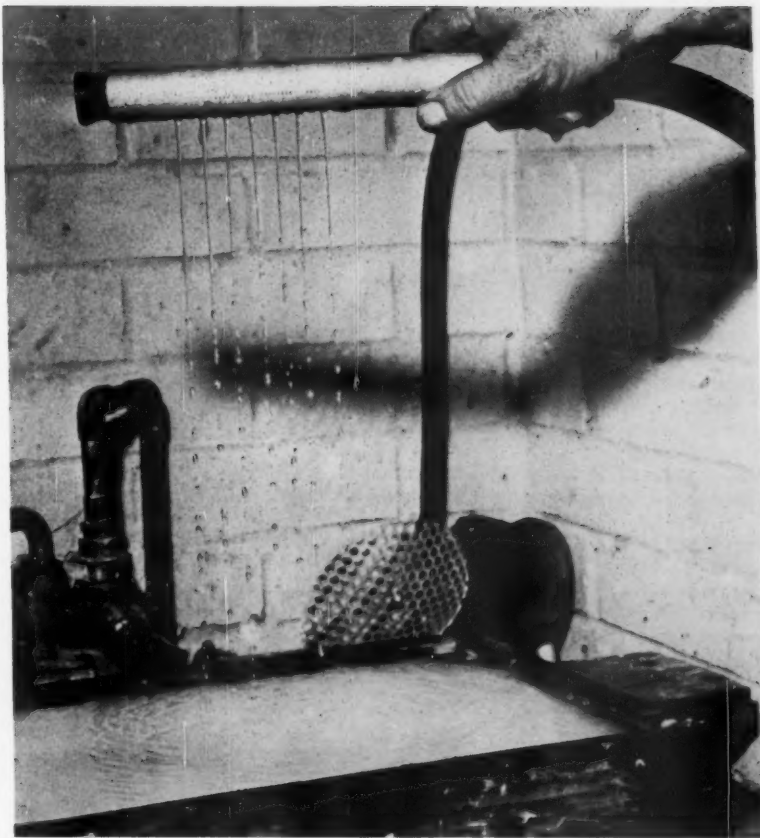
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This Ingenious Device . . .



Dropping Water on the Sheet . . . is a . . .

## New Dribble Shower That Licks "Shiners"

Simple device invented by mill manager proves "shiners" need no longer be a black eye to the papermaker . . .

### A "HOW TO DO IT" SPECIAL

PULP & PAPER — September 1957

● To the layman, a "shiner" is Americanese for a black eye—something you get if you don't keep your guard up. To the papermaker, a "shiner" is a lot more drastic and keeping up his guard doesn't help much. And a paperman with "shiners" is going to suffer a black eye where quality is concerned.

Thanks to the perseverance of Tom Stein, new resident manager of the Japanese-American mill-to-be at Sitka, Alaska, there may be a remedy for paper "shiners." Armed with only a light box, a length of pipe with holes in it, a garage "laboratory"—and plenty of patience, Mr. Stein may have found the panacea for the age-old problem.

In a sheet, a "shiner" is a hard blotch which varies in size from an almost infinitesimal spot to a wart-sized discoloration. "Shiners" are caused by fiber bundles in the stock which don't spread out when they hit the Fourdrinier. They ride the wire through and are ironed out by the dryers.

Mr. Stein calls his device a "dribble shower." It consists of a series of parallel water shower pipes located over the Fourdrinier wire in the area of the first table rolls—downwire from the slice. Pressure on the water is regulated in the shower headers and produces drops instead of a stream. These drops produce a series of impacts on the stock and water as it flows under the shower. Result: A levelling effect on fibers and improved dispersion.

"I know what a headache 'shiners' can be," Mr. Stein said. "If I can help cut the aspirin bills of other fellows, I'm glad to do it."

#### Trial and Error . . .

He began his experiments on Oct. 15, 1956, came up with an answer less than two months later. "Previously, the theory for breaking up these fiber bundles was that it could be done by violently shaking the stock before it went on the wire. A few tests showed me this was exactly the wrong way to do it." He filled a glass bottom box, with a floodlight beneath it, with pulp. He shook the box hard. The fibers formed into bundles and ridges, instead of dispersing.

Experimental nail rakes were successful in breaking up the bundles, but smaller bundles tended to form around the leading edge of the nails as they moved through the stock.

### The Answer: Bombing The Fibers . . .

Tom finally hit on the theory that bombarding the fibers might spread them out. He tried water droplets and the idea worked fine. Penetration of stock and water was quickly apparent. These "showers" also dispersed the bundles.

"Best results are obtained when the shower is 10 to 14 in. above the stock," he said. "When the pipes are above 14 in., craters form in the bundles and they tend to re-agglomerate. Below 10 in., there isn't enough force to really break up little bundles. A continuous stream, of course, acts just like a slice, grooves the sheet."

### Search for The Right Droplet . . .

Next problem was deciding on the size of the hole in the pipe. The light box was filled with stock of the same depth and consistency as that on the machine. The major problem in determining hole size was capillarity. Holes  $\frac{1}{8}$  in. in diameter and  $\frac{1}{8}$  in. apart, for instance, did not work. Capillary action tended to draw the streams together and destroy the droplet effect.

A milling tool was designed and made to form a small nozzle directly on the pipe to prevent capillarity. Aluminum conduit was used to make the pipe. Nine sections of pipe were drilled with holes over an area of 2 ft. The first contained holes .125 in. diameter; the second, .104 in.; the remaining seven, .093 in. These were mounted over the Fourdrinier just beyond the slice and a strip 2 ft. wide on the sheet was treated for comparison.

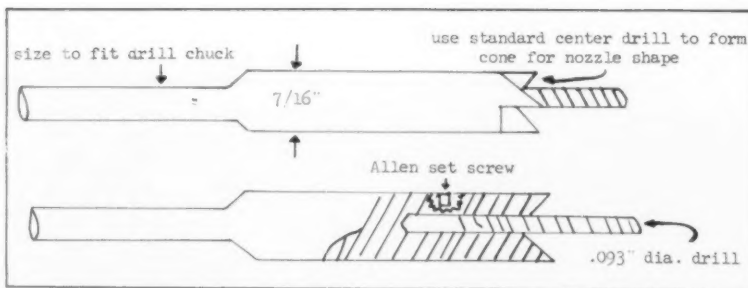
The 2 ft. section treated by showers was almost free of "shiners" while the untreated part of the sheet was spotted.

### Still Some Problems . . .

"There are still problems to iron out," said Tom. "Experimentally the best dispersion is obtained at low consistency. Sometimes the drainage through the Fourdrinier fixes the bundles before they can be dispersed by the showers. It may be desirable to extend the apron cloth and put showers over the cloth to reduce this effect.

More uniform drying is accomplished because there are less thick bundles to dry out. On a machine travelling 250 fpm about eight to ten 500 gpm showers are used.

"Using a smaller nozzle size can reduce the amount of water needed," Mr. Stein said. "I believe this system will work on high speed machines. The speed of the machine will determine the number of showers needed."



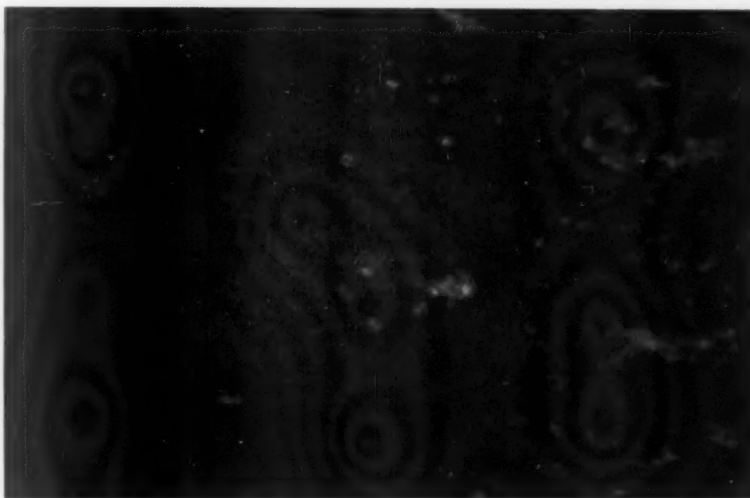
### Here's How Drilling Tool is Made . . .

Rough sketch shows how nozzle forming tool is made to drill holes for "dribble shower." Nozzle forming tool should be made for each size hole used in showers. Aluminum conduit was used for the pipe and fittings.



### Effectiveness of Shower is Seen . . .

Closeup of light box shows how "dribble shower" breaks up bundles of fibers in the stock. Ridges and bundles can be seen in left foreground of box, which was untreated. Rest of box has been smoothed out by shower.



### Look, Ma, No "Shiners" . . .

Photo shows actual "shiners" on treated sheet. Left side of sheet was treated; right side was not.

# How to Avoid Profitless Prosperity

- ✓ Marketing and distribution are management headaches . . .
- ✓ Costs of moving materials and products can be decisive . . .

• What is the most important problem confronting pulp, paper and paperboard management?

This question was posed by PULP & PAPER to Edward McSweeney, vice president and treasurer of Perkins-Goodwin Co., a leading management consultant whose ideas have been expressed in these columns before.

"The major problem," said Mr. McSweeney, "is the marketing and distribution of our products. This involves a problem of integration that extends all the way from raw materials until the finished product is in the hands of the ultimate consumer. That's why I like to define this problem simply as 'integrated marketing.'"

Q.: How does this differ from the "total marketing" concept of G. J. Ticoulat, senior vice president of Crown Zellerbach Corp., as set forth during the last Paper Week? As we understand it, Mr. Ticoulat considers total marketing as a change in emphasis from production to marketing—a necessary change if the industry is to continue to grow.

MR. MCSWEENEY: Basically, there is very little difference in the thinking of Mr. Ticoulat and myself. During Paper Week he was probably endeavoring to shock the industry into revising its concept so as to realize that, in this modern age, it isn't enough just to produce, but that we also have to market, and that the marketing problem must be appraised first, before establishing new capacity. I feel sure that Mr. Ticoulat would agree with my ideas and concept of integrated marketing.

Q.: Could you define integrated marketing for us?

MR. MCSWEENEY: Historically, the feast-or-famine cycles of our industry have been marked by some brilliant creative selling, usually on a person-to-person basis. Now the impact of the sciences and technology combined with a marketing revolution have resulted in a wedding of our outmoded selling methods with some engineering principles which can best be defined as "integrated marketing."

First, I think we should look at the background of some of our problems.

Twenty-five years ago, when I first began my work in the management field, I voiced what I felt to be vital functions of top management—to operate well for today and to project plans for tomorrow. This, of course, involved many things, some of which we have discussed here before. But the point is that over the years the changing competitive and distribution picture has forced a revision and adjustment of our management ideas to embrace all matters affecting our industry—all the way from raw materials right through to the final consumer.

Q.: Are any companies making these changes?

MR. MCSWEENEY: Many well-managed pulp and paper companies have

pioneered and developed these changes. They start with the understood policy that the purpose of a business is to sell something at a profit, and that every phase of the business must be operated in such a way as to insure that profit. Marketers of consumer products were first to develop integrated marketing policies, because they were so close to the ultimate consumer. They knew that a sale has not been made and the seller's responsibility finally and completely discharged until the product has moved through all the channels of conversion and distribution into the hands of the ultimate consumer.

In this industry, traditionally dominated in the management end by production and technical men, we have



**Ed McSweeney, Father and Son, Visit at Powell River . . .**

EDWARD MCSWEENEY, vice pres. and treasurer, Perkins-Goodwin Co., New York, accompanied by his daughter Mary and his son EDWARD MCSWEENEY III, re-visited British Columbia for the first time in 30 years recently and expressed amazement at what he saw at Vancouver, Powell River, Port Mellon, and other centers. He flew to Powell River as the guest of Powell River Co. with RICHARD G. McHUGH, manager Powell River Sales Co., and spent a night at the paper town. His son Ed remained in Powell River during the summer on an educational visit and to acquire practical experience in pulp and paper manufacturing. Photograph shows young Ed dressed and ready for his new job in the mill being congratulated by his dad. The McSweeneys flew up Howe Sound with officials of Canadian Forest Products, Ltd., but were unable to land at Port Mellon because of rough water.



been less alert to the need to get away from the ideas of "selling" and "sales management" to the full concept of "marketing."

Q.: All right, but how does this take us to integrated marketing?

MR. MCSWEENEY: Well, I have said that top management must first appreciate the importance of marketing in its overall operations. It must then develop an integrated plan that is: (1) integrated into source of raw materials—meaning close to continuing supply of wood, water and chemicals; (2) integrated into every aspect of manufacturing facilities and technical organization; and (3) integrated into market—meaning close to the end users of company products.

Let me elaborate on this. The cost of moving raw materials may often be a deciding factor in the future success or failure of a mill operation. In the same way, the cost of moving the finished product can be decisive. In integrated marketing, we must not only be able to manufacture a product successfully, but we must have economic sources of raw material supply and adequate facilities, and we must be relatively close to the markets we seek to reach.

Q.: Are we making any progress in the pulp, paper and paperboard industry toward coming to this understanding?

MR. MCSWEENEY: Of course we are. Many of the recent mergers within our industry and with companies outside the industry are aimed at achieving this integration and also at providing diversification. Certainly we are safe in predicting that there will be more mergers, and specifically more "joint ventures," or mergers that are non-mergers, in which two companies manufacturing non-competitive products set up a new operation to help solve the manufacturing and marketing problems of both.

Q.: Would you be so good now as to summarize this discussion in your own words?

MR. MCSWEENEY: In the first place, there must be a policy statement—the company must know why it is in business, and that is to make money by selling something at a profit. Secondly, there must be a man in charge who has a full awareness of the idea of integrated marketing. Third, a plan of operation must be evolved based on the integrated marketing principles for the company. There is no other way to avoid more of the "profitless prosperity" that has raised its ugly head in recent months. ●



#### His Job at Mead is to Help when Needed . . .

DR. ROBINSON (left) discusses problem with Director of Research R. N. GRIESHEIMER. This is kind of helpful service which he writes about in his Bolton top prize winning essay. . . .

## My Responsibility to Others . . .

. . . to superior in company, and to men who work under him. Think about what you "owe to others"

*Dr. James V. Robinson, of the Mead Paper Corp.'s Research Dept., Chillicothe, O., has become the third Mead employe to win the first prize of \$1,000 in the annual John W. Bolton & Sons, Inc., essay contest open to employes of all North American mills. First prize winners in previous years were Hugh Black, Industrial Relations, and Don Estebo of Mead's Harriman (Tenn.) Div. Here is Dr. Robinson's prize-winning essay on this year's topic, "My Responsibilities to Others in my Company."*

#### BY DR. JAMES V. ROBINSON

"Every human being has a work to carry on within, duties to perform abroad, influences to exert, which are peculiarly his and which no conscience but his own can teach."

Each man, in his daily work, is affecting the lives of the others around him. As I contemplate this obvious truth, the question comes to mind, to what degree am I accountable for the lives of others, as they are influenced through me? As I do my regular work, there are only a few people to whom I will talk, beside whom I will work, and with whom I will endeavor to get a job done. Are these the only people to whom I am accountable, and to whom I have a responsibility? Suppose that the man next to me knows

that I am doing a job which is something less than it ought to be: is it any more than between the two of us? Suppose that I do not concern myself with being friendly and cheerful with the people that I see each day: is the company any the worse for it, or do these people care? And supposing that they do care, why should I worry, so long as I do my job well enough to continue to draw my pay check? Is not the pay itself proof that I am living up to my responsibilities, and that is all that is required?

It seems to me that there must be more to it. The wage is proof that the company wants something which I have and am able to give, but the fact alone is of no help in understanding the extent of my responsibility. Accepting the text of the quotation, that the key to understanding my responsibility to the others in my company is my own conscience, what does this mean in practical terms?

#### Help Company Reach Its Goals . . .

One thing, which seems basic, is that I must try to help accomplish those things which the company is trying to accomplish. If the company is working toward certain ends, but my actions, whether it is known or not, are hindering the attainment of these ends, my conscience cannot justify me in taking wages from the company. If I do not approve of what the company is doing, I may either

express myself, in an effort to change the policy, or subordinate my beliefs to those of the officers of the company, knowing that they are thinking men in possession of facts I do not have. By doing my job constructively, as part of the company team, I help the men who manage the company to accomplish those goals which are a part of their responsibility.

#### **Responsibility to Superiors . . .**

Is my responsibility to my immediate superiors anything different from this, merely because I know them through regular working contacts? If I am cooperating to achieve company goals, as presented to me through my immediate superiors, what more is there to my responsibility? Perhaps it comes down to what it means to cooperate. To look at my superior as a man striving to do a good job may be the first step. To strive to help him in every way at my disposal may be the second. Doing what he asks intelligently, completely, and with understanding will mean that his task is made easier. My job well done makes his accomplishment greater and his life more satisfying. If his contact with me is a pleasant one, both he and I benefit. If he is downcast, my willingness will make him feel better. If I am downcast, his remembrance of my past cheerfulness will enable him to cheer me. We thus have a mutual responsibility, each to ease the other's daily work by a friendly understanding of the other's problems, each to do his part toward solving them.

#### **Responsibility to Men "Under Me"**

How about the men who work under me? I expect sympathy and understanding from my superior; those under me must expect it from me. From my superior, I get my perspective of the goals we work for and of the jobs to be done. The men working for me must have as much from me, to the limit of my ability. I have been taught about my job, and in the process have learned the jobs of those under me. They must be given the benefit of my experience and counsel of those above me. My good example should be their guide. My job is made up in part of the jobs of those under me. Their success is my success, their capability is my capability. Their feelings reflect in their ability to work. As I can influence their feelings to greater serenity, so can I increase their ability to be productive.

In all of these thoughts, I have assumed that I am able to do my job well, if I wish to. How can I do my job well, though, if I have not learned all of the things that are needed to do it, and if I do not keep learning, and

thinking of solutions to the daily problems? No amount of cheerful friendliness will make up for incompetence, either in the eyes of superiors or subordinates. The first requirement to get the job done is know-how. Therefore, unless I am diligent at learning, and industrious at applying what I know, none of my responsibility can be discharged, for my ignorance and lack of skill will hinder both those above and those below me, and will hinder rather than help the attainment of the goals of the company. It seems that first attention must be paid to equipping myself to do the job. This closes the circle, in a sense, because the extent of my responsibility rested with my conscience: the ability to fulfill my responsibility rests within me, the result of the diligence with which I cultivate my native talents and learn to do the jobs set before me.

Suppose that I turn my thoughts toward my own ambition. Conscience aside, where do I profit from all of this

attention to the goals of the company, this striving to maintain competence in my job, and to fully share the burden of those above and below me? Do I not have a right to expect compensation for all of this? Do I not have a responsibility to myself also? I can see the answers to these questions all around me: "Responsibility walks hand in hand with capacity and power." Men who see and accept their broad responsibilities are hard to find, and the company devotes much time to looking for them. By tending to my responsibilities to others, I have already taken care of my responsibility to myself. The rewards will be real, as I advance to the limit of my abilities; and intangible, also, in satisfaction for the job accomplished and in friendship with those with whom I associate. "Much misconstruction and bitterness are spared to him who thinks naturally upon what he owes to others rather than what he ought to expect from them."

#### **Two Giant Yankees— Both Shipped via Oceans**

Two of the largest Yankee dryers to be built in America were recently completed and sent to their destinations.

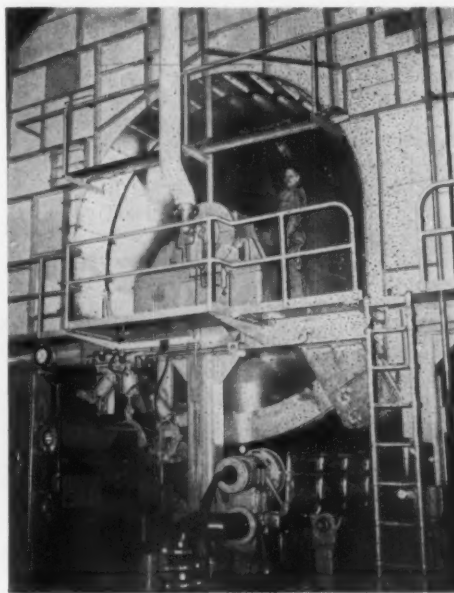
One is a 16 ft. diameter Yankee installed on a new Beloit machine in Bellingham, Wash. Another is a 14 ft. diameter Yankee going on a Black-Clawson machine for Bowater-Scott joint operations at Northfleet, England. Both Yankees were built by Newport News Shipbuilding & Drydock Co., Newport News, Va.

The larger one has gone into production at the Bellingham plant of Pacific Coast Paper Mills. It is 93 in. wide and weighs 80 tons. It was transported by ocean ship to Seattle, then by barge to Bellingham.

The Yankee shipped to England has a 168 in. face. It weighs approximately 68 tons and is designed to operate at 150 lbs. steam pressure for speeds up to 2500 fpm. It is going into service on a 144 in. Fourdrinier tissue machine now being constructed by Black-Clawson International, Ltd., in South Wales for Bowater-Scott Corp.

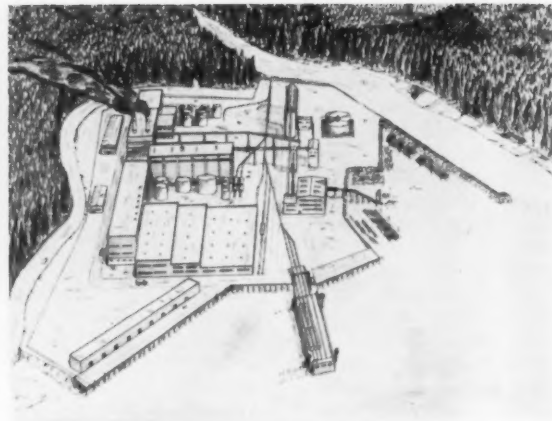
#### **Man Dwarfed by Dryer**

RUSS GOODWILLIE, West Coast representative of Beloit Iron Works, is overshadowed by new 16-ft. diameter dryer at Pacific Coast Paper Mills.





**At This Rugged Alaskan Site . . .**



**Will Rise This Pulp Mill . . .**

Dredging for ship berths and long pond started in mid-August at site of Alaska Lumber & Pulp Co.'s mill on Sawmill Creek, six miles east of Sitka, Alaska. The creek will be diverted along the east shore and the log pond will occupy the present stream location. Drawing (right) shows proposed layout of the mill.

## Alaskan Pulp Mill at Order Stage

**Japanese-backed project in Alaska's Tongass National Forest is now calling for bids on major equipment**

A project that began six years ago when Japanese industrialists first proposed building a pulp mill near Sitka, in Alaska's Tongass National Forest, has reached the stage of calling for bids on major equipment. Harold D. Cavin, chief engineer for Alaska Lumber & Pulp Co., Inc., told PULP & PAPER that orders will be placed soon.

Tom Stein, formerly manager of Rayonier's Jesup, Ga., mill, will be resident manager of the new mill and is living in Seattle where the firm recently opened official headquarters. He will move to Sitka when the mill is nearly finished. Archie Byers, who was assistant logging manager for Alaska Pine & Cellulose in British Columbia, is woods manager. He moved to Sitka in July to start organizing logging operations. Frank V. Sincock is new assistant treasurer of the company. He was with Price Waterhouse and did the auditing for the Ketchikan Pulp Co. mill.

Henry B. Pratt, a partner of Stevenson & Rubens, consulting engineers of Seattle, is project engineer in charge of detail design. A native of Waltham, Mass., Mr. Pratt graduated from Worcester Polytech Institute in 1932 and went to work for Hardy S. Ferguson Co. He assisted Mr. Cavin in construction of the Hollingsworth & Whit-

ney mill in Mobile, Ala., in 1940, and also on the Ketchikan job. He was with Union Bag & Paper Corp. in Savannah before going to Ketchikan.

Mr. Cavin was born in Anaconda, Mont., and attended the University of Montana. After WW I, he was a Tacoma, Wash., city and port construction engineer. In 1928 he was field engineer for the Union Bag mill (now St. Regis) at Tacoma and in 1930 for Puget Pulp's Everett, Wash., mill (now Scott), where he was plant engineer till 1936. He headed an engineering firm which built Puget Pulp at Bellingham, Wash., and was Hardy S.

Ferguson Co. resident engineer in charge of construction of the H & W mill (now Scott) in Mobile. He returned to the West Coast to build Puget Pulp's second unit at Bellingham in 1940 and, after WW II service as a commander with Seabees in the Pacific, he went to Alaska on a survey for Puget in 1946. He was at Ward Cove from 1952 to 1954 in charge of building the Ketchikan mill.

He is presently on leave from Puget Pulp and has moved to Seattle.

Sitka Pulp Mill Builders, a joint venture of Guy F. Atkinson Co. and Howard S. Wright Co., are contrac-

### Engineering Sitka Mill

HAROLD D. CAVIN (left) is chief engineer, and HENRY B. PRATT (right) is project engineer in charge of detail design for new Alaska mill.





tors for the new mill.

As of now, the plan is to use the magnesia base sulfite recovery process which was pioneered on plant scale by Weyerhaeuser at its Longview mill. Ketchikan Pulp was the second mill to use this process and the first new mill built especially to use it.

The Alaska Lumber & Pulp mill is expected to cost \$55 million. Startup is scheduled for 1960.

Officers of the Japanese-American owned firm are Tadao Sasayama, president; S. Fukuyama, executive vice president; Takuji Ohshima and Y. Arita, vice presidents; and Y. Niki, vice president and secy-treas.

When a Japanese group first approached the U.S. Forest Service in 1951 with a proposal for outright purchase of Alaska timber, using Japanese labor, it was turned down as "contrary to established U.S. policy, which aimed at using national timber to develop Alaska industry and population." Then came an agreement that primary processing take place in the territory and that the enterprise be an American corporation. It eventually received official sanction for two reasons: It "would materially assist Japanese economy" and "would develop a



**Organizers of Alaska Pulp & Lumber Co.**

Left to right: Y. NIKI, vice president and secy-treas.; M. SADAYASU, a company official and interpreter; Miss A. KOBAYASHI, secretary to her father, J. KOBAYASHI; T. SASAYAMA, president; J. KOBAYASHI, former president and early organizer (front); T. OHSHIMA, vice president; and S. SAITO, former Seattle consul.

self-sustaining economy in Alaska." It was a highly controversial issue, however, and was viewed with disfavor by various segments of the industry, culminating in a protest to the U.S. government by the American Paper & Pulp Assn. in 1954.

Meanwhile other firms began to show interest in the Tongass National Forest. In 1954, Pacific Northern Timber Co., a firm organized by Robert Johnson of Oregon's C. D. Johnson Lumber Co., and others, bid success-

fully on three billion bd. ft. of timber in the Wrangell region. The following year Georgia Pacific Plywood Co., through its wholly-owned subsidiary, Georgia Pacific Alaska Co., won the bid on 7.5 billion bd. ft. near Juneau.

With one operating mill at Ketchikan and pulptimber allotments sold to three other organizations, B. Frank Heintzleman, then governor of Alaska, stated that "the Forest Service prefers not to consider any more pulp mills for at least ten to fifteen years."

## Electronic Brain Controls Paper Machine

Two years ago Champion-International Co. installed an AccuRay beta ray reflection gauge on its 166-in. wide, No. 2 Fourdrinier.

Since then, according to company officials, this installation has been giving accurate measurement of the basis

weight of the paper being delivered and recording variations on a scale chart. If variations in excess of predetermined tolerances appeared, the machine operators manually adjusted the stuff box.

Now a Mark II AccuRay auto con-

troller and profile averaging computer have been added. Results: Whenever the beta ray gauge signals that the weight of the web is not in conformance with specifications, adjustments are made automatically at the stuff box.

The beta ray gauge traverses the web of paper as it leaves the last dryer roll and transmits electronically to a recording device where they are transcribed on a scale chart. Variations on the chart recorder are transmitted to the profile averaging computer. This unit averages the variations and determines whether weight correction is necessary.

When the computer determines that a weight correction is necessary, a signal is sent to the error sensing unit which automatically adjusts the stuff box gate. Adjustment is made within 4 min.

Also included is a safety and alarm unit which contains relays and switches to shut off other units in the gauge when they are not operating properly. An alarm will sound to alert machine operators. The alarm will also sound for extreme variations in the weight of the web which would not be feasible to handle in the gauge.

Another interesting device is an operator's control box and switch unit which allows the operator to run the unit on automatic or manual control.



### Accurate Measurement of Basis Weight Begins Here

AccuRay installation on last dryer roll on 166-in. paper machine at Champion-International Co., Lawrence, Mass. Beta ray reflection gauge traverses web of paper emitting stream of high-speed electrons which are reflected to detector unit.

# Why Hinton?



**"The Root of Hinton Story is this Wood . . ."**

President Adams, dressed for Alberta woods in summer—in this picture taken by PULP & PAPER at Hinton, . . .

Mr. Adam says:

"One of last substantial contiguous timberlands in North America . . ."

"Long, thin, strong fibers make pulp of finest quality . . ."

"We decided on continuous pulping for uniformity."

"Six stage bleaching with C10 stages . . . for brightness with less strength loss . . ."

"Glacier water for purity . . . elaborate filter system is further safeguard . . ."

"Transportation to U.S.A. mills in six to nine days . . ."

BY WILLIAM R. ADAMS

President, North Western Pulp and Power Ltd.,

and

President, St. Regis Paper Co.

(a special report . . . as told to PULP & PAPER)

● The heart of the Hinton "story," as it has been called, lies in the vast virgin forests on the eastern slope of the Canadian Rockies. Protected from strong winds and sheltered from overabundant rainfall, lodgepole pine and white spruce thrive amidst one of the last substantial, contiguous tracts of timberland in North America.

These forests are the root of the story behind the joint venture by St. Regis Paper Co. and North Canadian Oils Ltd. in Alberta. Ours is a unique and pioneering partnership in many ways, and not the least is a sober trust concerning these woodlands which cover an area approximately the size of Massachusetts. It is North Western Pulp & Power's responsibility to manage a sizeable portion of the Crown Lands of Alberta so that those lands will have the same volume of timber products on them 10 years, 25 years, 100 years from now as they have today. While that volume is being maintained, and, in fact, improved, the provincial government will receive a good income from its products and the people of the province will participate in the fruits of enterprise.

## Conservation with Use . . .

Forest conservation is a term widely used and widely misunderstood. Conservation, as the term is commonly employed, suggests some limitation on the use of such natural resources as coal, oil and minerals. Forest conservation, on the other hand, is not possible without use. In the words of Dr. Richard McArdle, chief of the U.S. Forest Service: "Forest conservation starts with forest utilization, and forest conservation is not possible without a strong forest products industry to broaden the utilization of the existing forest cover."

We expect to prove over the years the advantage, if not the absolute necessity, of the contributions made by an established and experienced woodlands operating department which is in close touch with practices and research throughout the world. Our forestry program is, I believe, the most modern in North America with the latest systems of mapping, continuous forest inventory, and silviculture all devoted to developing a truly sustained yield program. We are clear cutting; leaving untouched strips along major water courses, highways, main access roads, and lakes so that the traveling public will not see the actual logging operations. It is our belief that milestones in forestry history will be reached here.

## How It Was Conceived . . .

Frank E. Ruben, president of North Canadian Oils, was among the first to see the possibility of developing that vast segment of Alberta's natural resources above the ground. He had



Roy King Ferguson



Frank E. Ruben

### Hinton Is "Their Baby" . . .

Frank E. Ruben, a former Los Angeles real estate man, was visiting a coal mine he had acquired at Bryan Mountain, west of Edmonton, in 1949. He was impressed with vast untouched stands of lodgepole pine and white spruce which he saw.

He never forgot that scene. It drove him to obtain government cutting rights and a timber reservation agreement. He discussed his dream with various American and Canadian pulp and paper com-

panies, but no sparks were lighted.

In April 1954 he met Roy King Ferguson, then president of St. Regis. Within two months they and their associates were partners in one of the fastest big pulp projects ever launched.

Mr. Ruben had gone to Alberta 22 years ago after dabbling in oil in California, looking for bigger things. He heads North Canadian Oils Ltd., St. Regis' partner in North Western Pulp, and North Canadian has a 20-year contract to supply natural gas to the Hinton mill.

been working in the rich Alberta oil fields, realized the potentials of the forests, investigated and negotiated a timber lease with the government.

Mr. Ruben in his quest for a partner looked for an expert's help—a company experienced not only in pulp manufacturing, but also in distribution.

He approached Roy K. Ferguson, who at that time was president of St. Regis and now serves as chairman of the board and chief executive officer, and the two men concluded arrangements to build the mill.

Incidentally, St. Regis is no stranger when it comes to pioneering in pulp manufacturing. The first market pulp mill in the United States was our Tacoma, Wash., mill, which was started up in 1927. Ten years later, St. Regis was the first to make bleached kraft pulp in North America. Since World War II, we have expanded our kraft pulping facilities by 530%.

### Experience Counts in Building . . .

Many groups can build a pulp mill, but a pulp mill such as the one at Hinton offered an unusual challenge even to an organization of long and diversified experience and world-wide acquaintanceship such as the experts who built the Hinton mill. The St. Regis group that designed it have constructed about a dozen pulp mills and among themselves have visited, I am sure, every pulp mill in North America, as well as making many trips to Europe in direct connection with the design of this mill.

All of our thinking from the start revolved around these slow growing northern conifers, very similar to those of the Scandinavian forests, and the long, thin, strong fibers they produce. From our experience and careful planning, we reasoned, the bleached kraft pulp produced from these fine fibers should be the finest quality obtainable anywhere in the world. Today, this confidence has been fulfilled.

### Uniformity Was Major Goal . . .

Customers' wants dictated the planning of the mill in a large respect. The St. Regis group is accustomed to thinking in these terms since the company is a major consumer in its widespread operations. In our thinking, uniformity was a key factor.

In fact, uniformity of pulp had intrigued us for some time. Several of our men had spent several months in-

## THE HINTON STORY

vestigating the Kamyr system in operation in the Scandinavian countries. Batch pulp varies from batch to batch. Continuous pulping, we decided, was the answer. North Western could then offer its customers a constant and consistently bright, uniform, high-quality pulp. The resulting Kamyr installation at Hinton, rated at 500 tons a day, is the largest in the world.

Six-stage bleaching with chlorine dioxide stages was selected to make the brightest bleached kraft pulp available with less deterioration of strength. Process water is of the very highest purity and is taken from the nearby Athabasca River, which finds its headwaters in the glaciers of the Canadian Rockies, 70 miles south of Hinton. An elaborate automatic filter system further safeguards quality.

### The "Human Element"— a Challenge . . .

The all-important "human element" was carefully considered in the design of the mill, too. Some of our most experienced and promising personnel were selected to staff the mill—they, in turn, were eager to go because of the many new ideas and equipment they wanted to take a crack at. Much of this equipment will be standard some day in other St. Regis mills.

Hinton itself, 40 miles from Jasper National Park and 100 miles from Banff and Lake Louise, has emerged as a new town. It boasts modern housing, a shopping center, a theatre, a hotel, churches, all the amenities of a thriving community. Perhaps most important to the families of the 2,000 workers employed in the mill and the logging operations is a new, fully equipped and staffed school.

### Varied Uses for Product . . .

One final link remains—distribution of Alberta Hi-Brite. The challenge of constructing and operating a pulp mill

### In Charge of Overall Planning . . .

Hinton was last and perhaps the biggest of many stepping stones which Mr. Adams took to the presidency of St. Regis.

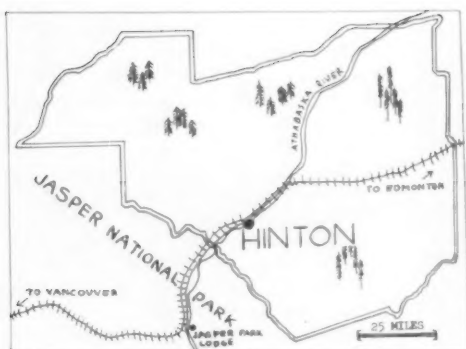
Born in Albany, N.Y., in 1907, he was elected to Phi Beta Kappa, national scholarship honorary, was captain of the football and lacrosse teams and class valedictorian at Union College, one of America's oldest schools.

He was diesel engine division manager, Fulton Iron Works, St. Louis, and was with National Supply Co., Springfield, O.,

and Robt. E. Read, Inc., Watertown, N.Y., before joining St. Regis in 1937. He recalls one of his early training jobs was as a tuber backtender at Oswego, N.Y. Mrs. Adams is from Watertown. They have two sons and a daughter.

Since 1943, he has headed all St. Regis manufacturing as vice president. He was in overall charge of planning the Alberta project, and was elevated to the St. Regis presidency within a week of the Hinton startup last April.





### In Double Lines— 6,000 Sq. Mi. of Tim- ber for Hinton . . .

Bulk of timber for new mill is within 50 miles. Jasper Lodge is 40 miles southwest.

amidst the virgin forests of Alberta required a company equally versed in sales as well as manufacturing. Months of planning dictated that, with today's equipment, 150,000 tons a year was the most economical capacity. To sell that output requires an experienced, nation-wide sales organization such as St. Regis which knows where the customers are, what they need, and how best to serve them.

Transportation facilities are excellent allowing shipments to move to the Midwest in an average of six to

eight days and to New York and New England in seven to nine days. That's important. Hinton is on the main road of the Canadian National Railroad and the main transcontinental east and west highway, No. 16.

When the time is appropriate, we hope and expect to increase our capacity at Hinton to provide more opportunities for the people of Alberta and to help supply Canada with that commodity, the use of which grows four times as fast as the growth of population. ●



McCarthy



Westbrook



Hart

### "Care—Spiced with Daring"— Went into Building of Hinton

So says President Adams, who gives major credit for creating Hinton to Justin McCarthy, St. Regis vice president and chief engineer; U. J. Westbrook, supervisor of all St. Regis pulp mills, and H. V. (Pete) Hart, general manager of all St. Regis northern woodlands.

Mr. McCarthy was born in Portsmouth, N.H., graduated from Dartmouth College in 1915, and served with the famed pulp and paper mill engineer, Hardy S. Ferguson, from 1916 to 1933. He was with Olympic Forests, a predecessor company of Rayonier Inc., from 1934-6, with Soundview Pulp Co., Everett, Wash., as chief engineer, from 1934-46, and since then, with St. Regis, building many mills and mill additions over the years. His wife, Elsie, was born in Tacoma, and they have two sons and a daughter. Justin, Jr., is in St. Regis sales. Son Jim won a

Hearst national junior golf championship in 1950.

Mr. Westbrook was born in Marion, La., in 1907, graduating in chemical engineering from Louisiana State College in 1928. His first job was in what is now Gaylord Container, at Bogalusa, La., as chemist. From 1930-8, he was with International at Camden, N.J., finishing up as tour boss, a job he then held at National Container, Jacksonville, for three years. In 1941 he joined Florida Pulp & Paper, Pensacola, later merged with St. Regis, rising to general supt. Since 1954, he has supervised all St. Regis pulp production.

Mr. Hart, who is based at Deferiet, N.Y., has had long experience in logging and woodlands development in northern New York and his responsibilities have spread to direct all northern woodlands of St. Regis. He was an early arrival at Hinton, and his son, Stan, is asst. woodlands mgr. there.



### Key Men—Easley-McCorry

Resident Mgr. A. THOMAS EASLEY (left) worked in personnel for New York mills and was acting resident mgr. of three mills—Deferiet, Carthage and Herrings, N. Y.—before called to Hinton.

A. C. (ACE) MCCORRY (right), production manager at Hinton, was veteran pulp supt. at Tacoma, Wash., mill.

### North Western Pulp & Power Ltd. Officers:

William R. Adams, president.  
Frank E. Ruben, chairman of the board.  
Benton R. Cancell, executive vice pres.  
Arch Caswell, vice president.  
Reg L. Vayo, vice president.  
J. E. Cowles, treasurer.  
Homer Crawford, secretary.  
Robert F. Ruben, assistant secretary.  
E. F. Staberg, assistant treasurer.

(All of above are with St. Regis Paper Co., except the Rubens, who are top officials of North Canadian Oils Ltd.)

### Directors:

W. R. Adams, G. H. Allen, Arch Carswell,  
J. E. Cowles, Roy K. Ferguson, E. R. Cay,  
H. B. Griffith, F. E. Ruben, R. F. Ruben.

### Hinton Mill Staff:

A. Thomas Easley, resident manager.  
A. C. McCorry, production manager.  
Adrien Provencher, woodlands manager.  
R. S. Welch, chief engineer.  
Wayne H. Sawyer, industrial relations mgr.  
Dennis Smith, pulp mill supt.  
B. C. Hoy, chief chemist.  
W. C. Allen, office manager.  
L. A. Veats, purchasing agent.  
G. L. Moorhouse, traffic manager.  
Desmond I. Crossley, chief forester.  
Robin Huth, public relations mgr.  
Stan Hart, asst. woodlands mgr.  
I. K. Sutherland, asst. pulp mill supt.  
J. Marsh, chief power engineer.  
J. Steingrube, chief electrician.  
Wayne Smith, director of training.  
Vern Hanson, woodyard-woodroom supt.  
H. Sandomir, chief mill scaler.  
James Clark, forester i/c inventory and management.  
John Serafin, asst. chief chemist.  
Paul Gora, senior engineer.  
Walter Childs, junior engineer.  
Cliff Dickinson, engineering assistant.



### Here's Alberta's First Pulp Mill . . .

1. Water treatment plant.
2. Chip silos.
3. Woodroom.

4. Recaucicising.
5. Recovery plant.
6. Power plant.
7. Raw materials warehouse.
8. Shops and stores.

9. Digesters.
10. Bleach plant.
11. Machine room.
12. Pulp storage.
13. Main and woodlands office.

New four-lane highway (top of picture) links Edmonton, Alta. (180 mi.—to top left), and Jasper National Park (40 miles away—to right). Each of four wood storage sections shown in foreground hold 50,000 cords of lodgepole pine, white spruce, etc.

## Why is Hinton Important?

One of very few mills in world on a watershed that flows to Arctic Ocean. Between it and North Pole—just one town, Athabasca, hundreds of miles downriver, and perhaps some Eskimos and polar bears.

First mill in western Canada which is not on tidewater. Rail freight rates and service are favorable. Tidewater is no longer "a must," as indicated by recent inland mills in U.S., too.

First continuous digester installation in Western Hemisphere making a standard high quality grade of woodpulp and largest of type in world. Continuous flow throughout mill.

What may be described as a "new" fiber—good printability, mullen, folding and poor tear. From virgin forests—slow growing thin fibered lodgepole pine and unusually tall white spruce. Straight trees, because Rockies protect them from western winds.

Extensive controls, simple to operate. Possibly the largest number of recorders used in any mill to date.

Unattended, automatic plant filtering 30 million gals. per day of glacier-fed river water. In rectangular shape, to facilitate additions.

Fourdrinier and largest Minton dryer, expected to produce up to 500 tons a day, has 66 dryers—one of the largest number ever built in one unit. It is on second floor, with auxiliaries below, as in a paper mill.

Six-stage bleaching, with two stages of chlorine dioxide, for a conservatively measured 89 brightness—93 or 94 by some test methods.

A 10-in. pipe brings natural gas 140 miles from the east. Power boiler burns bark, too. Recovery boiler will produce 200,000 pph of steam daily.

New safe and efficient systems for handling chemicals and makeup of chemicals for mill processes.

These, and many other unusual features are found in this mill, in which some \$60,000,000 had been invested up to July. This, of course, includes townsite, roads, woodlands equipment, gas pipeline, etc., besides the mill.

## Step by step story of how St. Regis engineers, armed with an ideal raw material, built their "ideal mill"

### Extensive Controls, Simple to Use

Much planning was put into the instrumentation for the Hinton mill. St. Regis engineers tried to keep away from complicated control systems. Even on the continuous cooking digesters they were able to stick to conventional type instruments and did not have to go to the complex instrumentation such as is found necessary for complete control on batch cookers.

The digester panel which houses the instruments, push buttons and signal lights for the two continuous cooking digesters also contains a semi-graphic panel with miniature running lights, indicating the operating mechanism over the entire digester system.

At each brown stock and bleach washer, console type bench boards were installed. Miniature indicators and controllers and standard recorders were employed here. Inserted in these panels also were the rheostats, push buttons signal lights and load indicators for each washer. Throughout the screen room, stock preparation and machine room only conventional type instruments were used. Line loss consistency regulators were used in these pulping areas.

In the liquor making and chemical recovery side the instrumentation was kept as least complicated as possible.

There are considerably more recorders, indicators, and controllers found in this mill than in most others. This gives better control over more phases of the process and a more complete record, say the Hinton operators. As a result more uniform operation and performance repeatedly can be attained.

Most process instruments throughout the mill are by Taylor. In the power plant, Bailey instruments are used.

The water filtering and treating plant was designed to be completely automatic. It requires only inspection by the shift chemist once each day. ●

### Wood Handling . . .

### Wood Preparation . . .

Pulpwood in 100-in. lengths is processed separately according to species. During the spring, summer, and fall, wood is reclaimed from storage by a

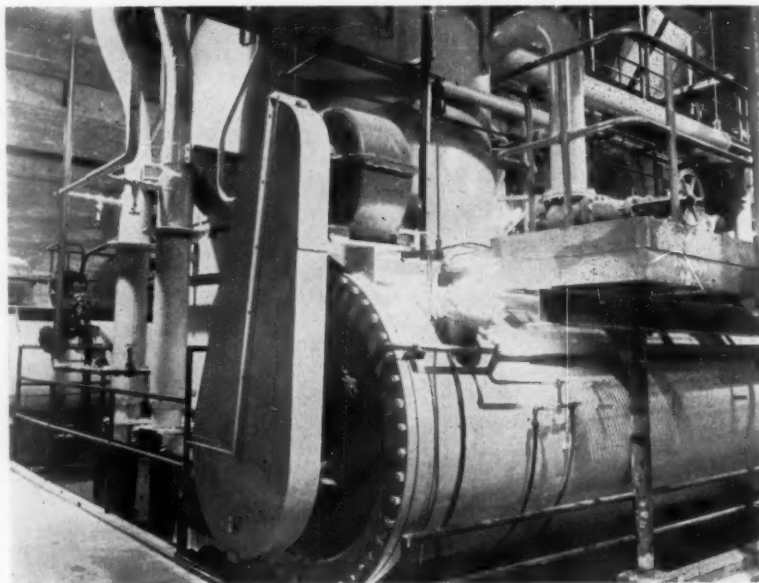
concrete, steel-lined log flume, 1800 ft. in length and 3 ft. wide. Recirculating water is provided by two Byron-Jackson vertical pumps handling approximately 11,000 gpm each. A Chain Belt grit collector, two Link-Belt disc screens and five Dillon bark screens are used on flume water.

During winter there are times when the log flume cannot be operated due to the low temperatures. This coincides with the hauling season and part of the trucked wood coming into the mill may be diverted directly to a winter wood conveyor system to the jack ladder.

Barking is by three Fibre Making Processes drum barkers, 12 ft. in diameter by 67½ ft. long, built by Horton Steel Works. Each drum is divided into three sections. Between the sec-

ond and third section a bulkhead is provided to allow submerged barking to the degree required to accomplish full barking. Bark is conveyed to a Gruendler hog and then de-watered in a Hymac-Fulton bark press, rated capacity 18,000 lbs. of dry bark per hour, and conveyed to a bark burning boiler.

Two 96-in. Carthage Norman chippers with twelve 21-in. knives, rotating at 400 rpm have 800 hp drives and feed speed of 250 fpm. Chips are screened over four Rotex chip screens. Oversized chips are returned to a 36-in. Sumner re-chipper. Accepted chips are conveyed by a 42-in. belt conveyor to three concrete chip storage silos, 97,000 cu. ft. each. Link-Belt rotary plate feeders discharge to a belt feeding digesters. ●



From this steaming vessel, two feed lines, instead of one . . .

## For Big Continuous Digesters

They are not only the first for high quality, fully bleached, kraft pulp ever installed on the North American continent, but, each of the two units is the largest of its type in the world.

Digesters are of Kamyr design—first capable of each producing 250 to 300 tons of high quality kraft pulp per day. While using one single di-

gester and discharge they differ from smaller installations in that two feeding lines are used instead of only one.

Chips from outside storage enter a small chip bin inside the digester building. This bin is common for all four feeding lines. From the chip hopper the chips are metered volumetrically into the system by Trans-Weight



Co. chip meters with variable speed drives. The metered chips are then fed into the low pressure steaming vessels through rotary low pressure feeders.

In the steaming vessels, which are 58 in. diameter by 24 ft. long, the chips are presteamed so that air and turpentine are driven out before the chips are submerged in the cooking liquor. The continuously recovered blow steam flashed off from the top of the common blow tank is used for this presteaming treatment. The evacuated air and gases are continuously removed in one single line from the four steaming vessels.

From the low pressure system the presteamed chips are introduced into the high pressure system by the special Kamy rotary high pressure feeder.

This unique piece of equipment, only 35 in. diameter by 42 in. wide, is said to have already proven capable of feeding 3400 cu. ft. of chips per hour while rotating at only 3 rpm. In addition, this feeder provides a positive seal in any position and does not carry out any mechanical action on the chips. The design is also such that it is balanced from load standpoint. Therefore, axial thrust with its resultant deflection and wear have been eliminated.

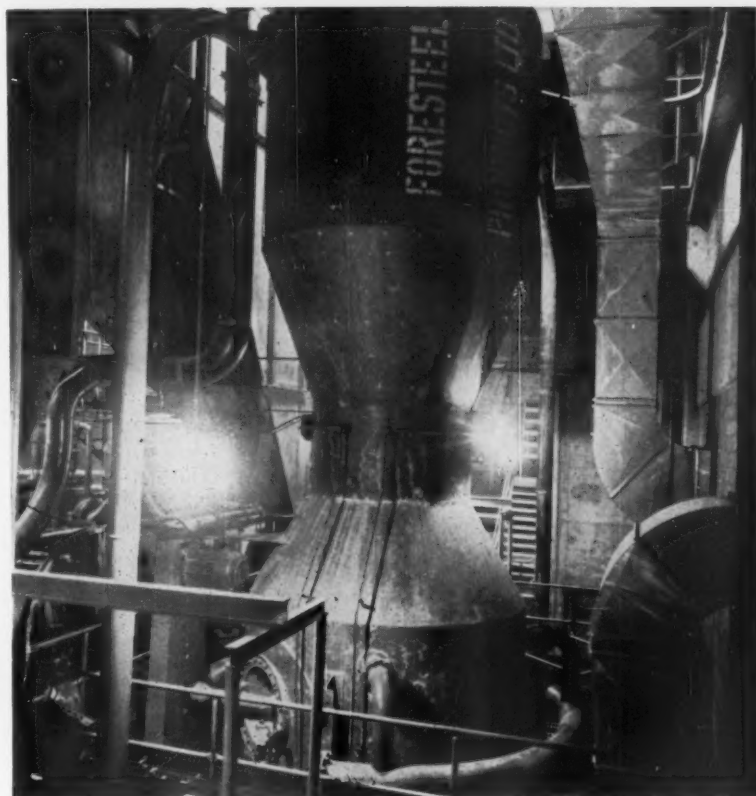
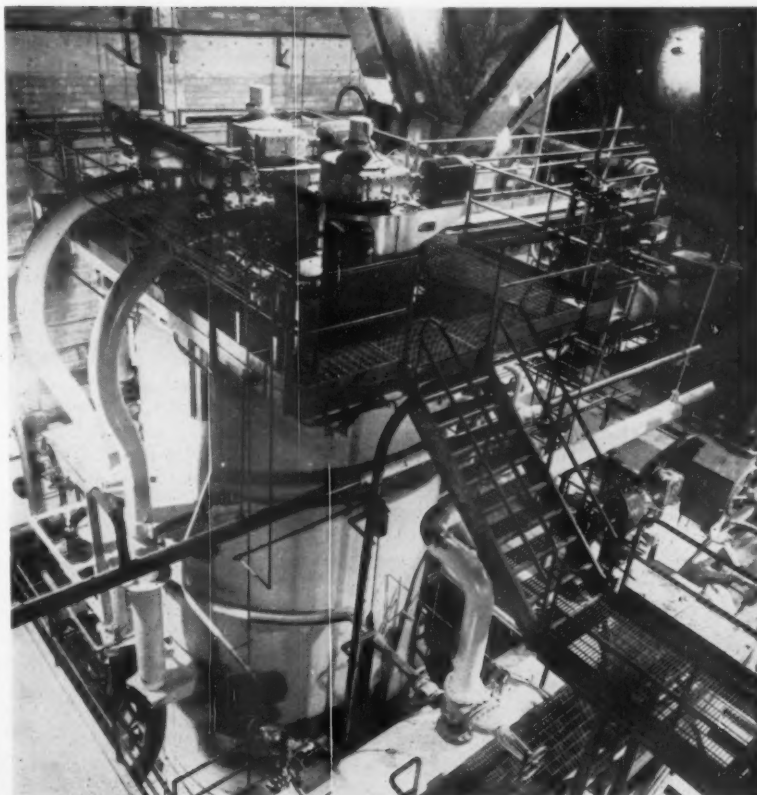
The chips are conveyed in a steady flow to the top of the digester by liquor which is continuously redrawn from the upper part. After entering the digester the chips move down through the vessel by gravity. In the upper part the chips are impregnated with liquor and in the middle part they are heated to the desired cooking temperature.

The heating is carried out by circulating liquor horizontally through the chip column which is moving continuously downwards. Heating is handled by two indirect Electric Steel Foundry black liquor heaters with Bingham circulation pumps. The strainer girdles installed in the digester are slotted vertically. A third Esco heater parallel to each digester is a spare.

At the bottom of each digester the cooked chips and liquor are discharged through outlet devices aided by a heavy revolving discharge scraper where the pulp is diluted by black liquor.

**At top of No. 2 digester,  
is a steady, measured  
flow of chips . . .**

**Carrying on through blow  
valves to continuous  
blow tank**





The fresh cooking liquor is continuously added to the digester at the top by a special high pressure pump which also holds the vessel under a hydrostatic pressure of about 30 psi above steam pressure. Due to this high pressure prevailing in the digester, there is no flashing of steam behind the strainers and this results in a very excellent circulation.

The actual cooking time at full temperature takes place in the lower half of the digester and at the bottom a scraper dilution system insures uniform feed to the continuous discharge system.

The two digesters at Hinton are each 13 ft. diameter by 88 ft. high and have been designed for the cooking time and cooking curve desired by the mill. Though they are made of carbon steel very little corrosion is expected due to the fact that the vessels are not only completely full of

liquor but are also operating continuously under constant temperatures and pressures.

The pulp is discharged at 12-14% consistency into a small blow tank 9 ft. diameter by 26 ft. high, common for the two digesters. The blow steam for the presteaming is recovered in the upper part while in the bottom part the stock is diluted with black liquor before flowing by gravity to the brown stock washing department. The special shape of the blow tank, somewhat like an hour glass, permits isolation of the upper half from the lower half. This permits the existence of different temperature conditions in these parts and results in maximum heat recovery in the upper part.

The two units at Hinton are fully instrumented and are operated from a centrally located instrument panel on the operating floor.

The excellent control of these con-

tinuous digesters coupled with the very efficient penetration, impregnation and uniform circulation and heating is expected to produce a pulp of extreme uniformity.

An interesting feature of this specific installation is the fact that all the equipment on the feeding side of each digester is mounted on a platform attached to the digester, permitting free expansion (or contraction) with the vessel.

Engineering and layout was done by Kamyr, Inc., Hudson Falls, N.Y., and the machinery has been manufactured by various contractors in accordance with Kamyr's drawings. Major contractors were Dominion Bridge Co., Canada Iron Foundries, Electric Steel Foundry Co., Bingham Pump Co., Canadian Vickers, Foresteel Products, Railway & Power Engineering Corp., Grinnell Company of Canada, and Taylor Instrument of Canada. ●



**A New PULP & PAPER Picture . . . First One of . . .**

## **Hinton's 6-Stage Bleach Plant . . .**

The bleach plant at Hinton is designed for 480 tons per day of unbleached stock to the chlorine tower and 430 tons per day of bleached stock out of the system.

The Kamyr system consists of the following stages:

1. Low-density, upward-flow chlorination. Tower size 16-ft. diameter by 86-ft. 6-in. high.

2. High-density downward flow caustic extraction. Tower size 16-ft. diameter by 39-ft. high.

3. High-density, downward-flow hypochlorite. Tower size 16-ft. by 39-ft. high.

4. High-density, upward-flow chlorine dioxide, fed by a Kamyr rotary air feeder. Tower size 18-ft. diameter by 85-ft. high.

5. High-density, downward-flow caustic extraction. Tower size 16-ft. diameter by 39-ft. high.

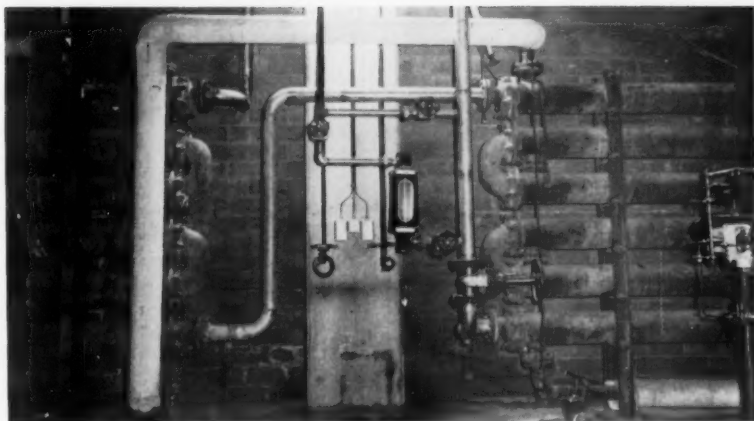
6. Second chlorine dioxide stage, identical to 4th.

All tower shells were supplied by

Horton Steel Works. Tile linings have been installed by Canadian Stebbins Engineering for towers, seal tanks, Stebbins bricklined  $\text{ClO}_2$  tanks and towers and built Sentile washer vats.

All bleach washers are Sherbrooke Impco, and are 11-ft. 6-in. diameter by 20-ft. face. Washer material is 316 stainless steel for the two caustic stages and hypochlorite stage and 317 ELC stainless for the remainder.

Chlorine dioxide is manufactured by the Mathieson process. ●



**Handling of 73 % Caustic Soda**

*Design of equipment, instrumentation, field checking, testing, training of personnel, cost considerations . . . all these went into a system at Hinton for . . .*

## Efficient, Safe Use of Chemicals . . .

Considerable freight savings are made possible by shipping caustic soda as 73% liquid. The caustic soda is shipped in insulated tank cars at temperatures above 200° F. to keep it molten in transit. At the mill, the 73% caustic is pumped out of the tank cars to a dilution system where caustic and water are mixed in a special tee and coil. Enough water is added to produce 50% caustic and the amount of dilution is accurately regulated by measuring the temperature differential across the mixer. The heat of dilution raises the caustic temperature and, before storing, the caustic must be cooled to about 120° F. This

is accomplished by passing the 50% caustic solution through two shell tube heat exchangers in series. All caustic transfer pipes are steam jacketed and insulated to permit operation in sub-zero weather without danger of freezing the caustic.

### Chlorine Handling . . .

The system is very efficient. One man can unload and dilute 52 tons of caustic in approximately three hours with little attention. Hot water from the exchangers is saved in a hot water tank.

The mill utilizes chlorine for direct chlorination, automatic sodium hypo-

## THE HINTON STORY

chlorite production and water treatment. Since all uses require chlorine in gaseous form, a simplified handling system was incorporated. Liquid chlorine is pulled from one tank car at a time, flows through an automatic signal tank, and through a 4,000-lb. per hour nickel body, steam heated, automatic Hooker chlorine evaporator. Chlorine gas at controlled temperature and pressure is piped to the three points of use.

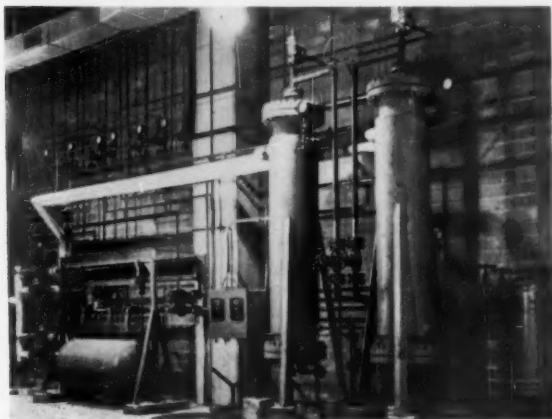
As a tank car goes empty, a signal is energized and the operator simply changes valves in the building to supply liquid chlorine from a new car. The empty car is then blown down into the automatic bleach liquor system to save all of the residual gaseous chlorine.

Automatic pressure and flow control valves are used throughout to assure efficient, controlled usage of chlorine.

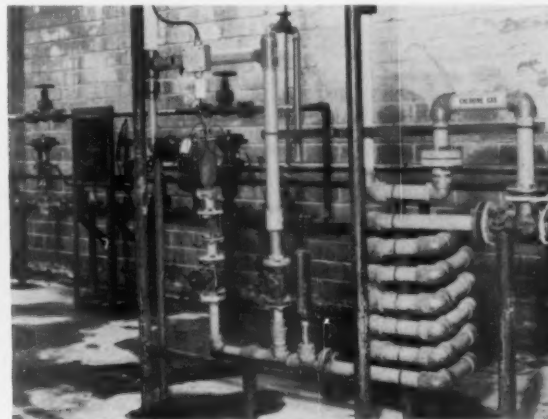
### Hypochlorite System . . .

Hooker continuous, automatic sodium hypochlorite system has been installed at Hinton. The unit is remotely controlled from a control panel on the washer floor and continuously produces bleach liquor of desired quality and rate as determined by bleachability tests. Conductivity is used for automatic control of caustic dilution and oxidation-reduction is used for control of bleach liquor quality. Automatic safety shutdown and alarm provisions are incorporated.

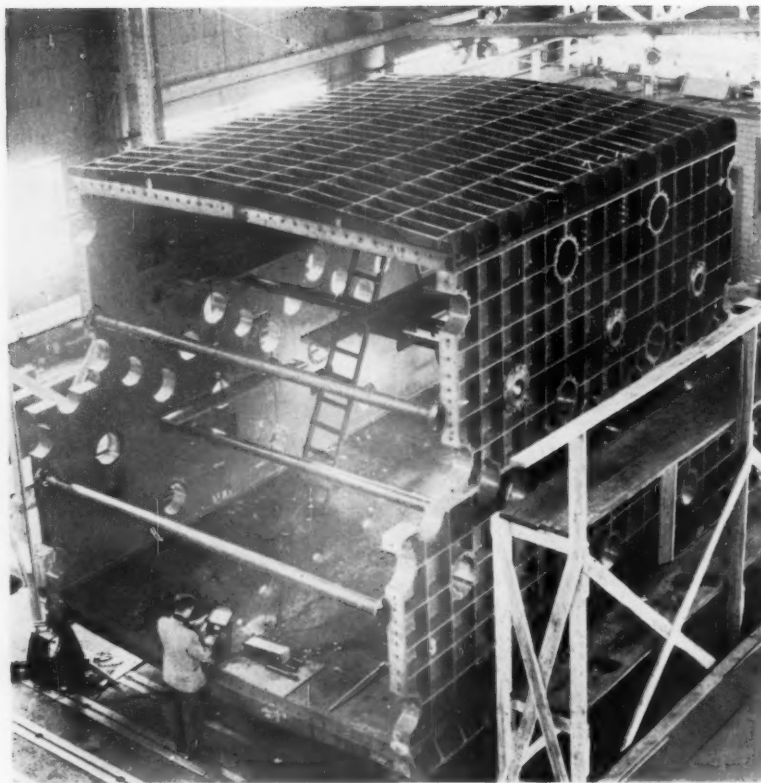
Hooker Electrochemical Co. technical service engineers recommended and assisted North Western Pulp & Power Co. and St Regis Paper Co. engineers in the design and startup of these facilities in the Alberta mill. ●



**Chlorine Handling and Evaporation**



**Automatic Sodium Hypochlorite System**



### Strain Gauge Testing . . .

On just one section of 200 ft. long vacuum chamber. An important pre-operation test for . . .

## World's Biggest Minton Dryer . . .

**Rated capacity is 450 tons a day at 500 fpm.  
Fourdrinier wire is 168 in. wide, 95 ft. long**

Seven Vibrotor screens, four stages of Bauer Centri-Cleaners and an Imp-co decker precede the pulp dryer at Hinton. Stock is pumped at 2.5% to a stuff box 30 ft. above the wet end.

The pulp drying machine at Hinton, designed and built by Dominion Engineering Co., Ltd., starts with a flow box of fabricated construction, lined with stainless steel. It has pond plates 16 in. high. A stainless steel distributor roll with variable speed drive is located immediately ahead of the slice.

Table rails and suction box rails are of fabricated construction and stainless steel clad. The table roll bearings are adjustable vertically and longitudinally. The breast roll is mounted in arms which are operated hydraulically to restore it to its working position. An aluminum walkway extends

along the Fourdrinier. Breast roll and wire roll doctors have composition blades and stainless steel clad backs. The deckles are of the stationary ruler type. The table rolls are of rubber covered steel.

There are five wide stainless steel suction boxes, one of which can be located at various points in the table section and four oscillating boxes in the usual location followed by a 3-compartment Evans rotabelt. A dandy roll is located between the last suction box and the rotabelt. Two stainless steel hot water weirs are located in the suction box area.

The suction couch is a Dominion direct driven cantilevered type with a 2-compartment suction box, 13 in. and 6 in. wide, and air loaded longitudinal seals. The holes in the shell are not countersunk. There are two

18 in. diameter pneumatically operated presser rolls which are arranged for automatic lift in case of drive failure. Each presser roll has a hydraulically oscillated shower.

### The Press Section . . .

The press part consists of three straight-through presses with two predryers ahead of both the second and third presses.

The first press is a suction press designed for 300 p.l.i.; the second and third presses are plain presses designed for 750 and 1,500 p.l.i. respectively. All press rolls are mounted in anti-friction bearings and, where necessary, special bearings are used to allow for axial expansion due to the temperature of the sheet coming from the predryers.

The predryers are designed for 100 psig and are equipped with rope carriers. The three press felts are of the same length. The vertical felt stretchers are hydraulically operated with automatic tension control and the felt guides are pneumatically operated.

The top press rolls are hydraulically loaded and lifted. The consoles for the presses and other consoles of the machine are located in the tending aisle.

### The Minton Dryer . . .

The vacuum chamber is over 200 ft. long and is constructed of heavy cast iron wall, roof and floor sections which have a total weight of 1300 tons. The chamber is made airtight by accurate machining of all the castings and completed it contains sixty-six 60 in. diameter dryers.

The sheet enters the Minton dryer through seal rolls at the wet end and leaves through a similar set at the dry end. The pulp can be observed through the quick opening window frames which are provided with wipers and all manhole covers and access doors are arranged for quick opening. There are six large vapor outlets in the roof. The dryers are designed for 60 psi operating pressure, mounted in anti-friction bearings and equipped with compensating steam joints. All dryer bearings are accessible and can be removed from outside the vacuum chamber framing.

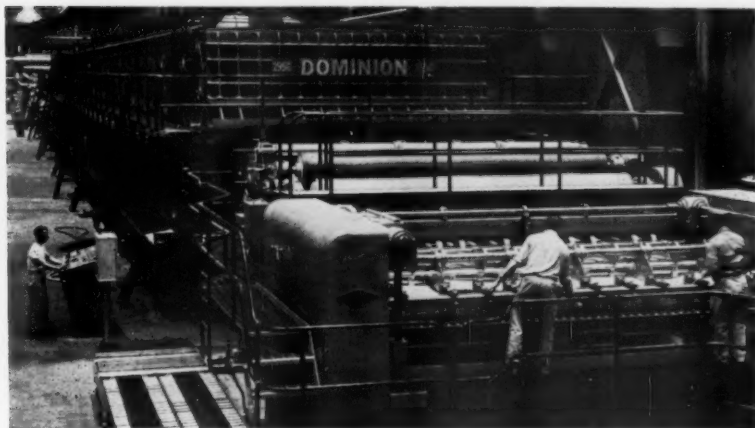
The dryer felt stretchers are hydraulically operated with automatic felt tension control. The dryer section is equipped with an automatic shut-down system. Whenever the pulp sheet is not over all the dryers a warning light operates and at the desire of the operator the controls can be set to automatically shut down the dryer section when the sheet breaks.

The Fourdrinier and dryer are



driven by a magnetic amplifier Westinghouse drive. S. F. Products Ltd. provided all ventilating equipment.

Canadian Stebbins tile lined wire and couch pit and stock chests and built Semtile flumes and decker vat. ●

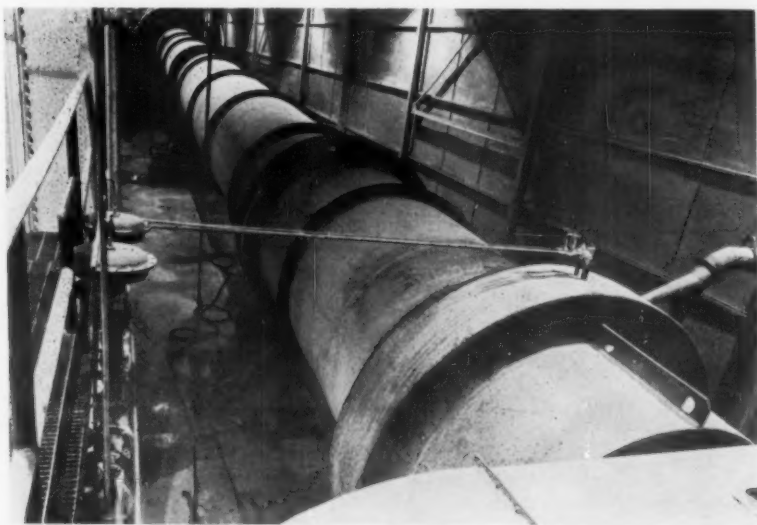


#### At Dry End of Dominion Machine . . .

. . . the pulp sheet is fed into a heavy duty Lamb-Grays Harbor pulp cutter which will cut either pulp or wrapper sheets. Sheets are then discharged to a continuous automatic layboy which stacks them in 500 lb. piles. A swing table transfers piles to belt conveyor with wrapper pickup section. Then the pulp stacks are fed through a scale

and a Washington Iron Works 1,000 ton baling press, to automatic tying machine and via conveyor and Link-Belt Lowerator to the warehouse, a completely automatic handling system.

The pulp storage building is 350 ft. by 150 ft. with fork truck loaders and r.r. cars brought inside on a Canadian National spur track.



#### 250 Ft. Long Kiln at Hinton . . .

. . . designed by Allis-Chalmers processes lime sludge from system at rate of 125 tons per day of product calcium oxide. Nine ft. in diameter, it rests on 4 supports, has a 37 ft. 4 in. chain section.

#### Chemical Recovery . . .

##### Liquor Making . . .

A sextuple effect evaporator by

Swenson Evaporator Co. is equipped with six La Bour pumps; four being interstage black liquor transfer pumps, one a contaminated condensate pump

#### THE HINTON STORY

and one a clean condensate pump. Plain steel tubes are used in Nos. 3, 4, 5 and 6 effects while stainless steel tubes are used in Nos. 1 and 2 effects.

A mixed type of weak black liquor feeding is used. The liquor is fed into the 4th and 5th effects. From the 5th it flows into the 6th and then liquor from the 6th effect joins incoming feed into the 4th. Then it goes to the 3rd, 2nd and 1st effects and two-stage flash tank successively. This type of feeding is designed to cut down liquor carryover and increase overall efficiency.

Liquor is transferred from strong black liquor storage tanks by a Worthington pump at the rate of 224 gpm to the troughs of the dual chamber Koppers electrostatic precipitator. The precipitator, designed to handle 200,000 cu. ft. of gas per min. is 34 ft. long, 40 ft. wide and 32 ft. high and is equipped with twenty vibrators for removing dust.

The two cascade evaporators furnished by Combustion Engineering are the tubular type and are operated in series.

A Combustion Engineering recovery unit is designed to handle 1,400,000 lbs. of dry solids per day. Ten spray nozzles are used for spraying black liquor into the furnace.

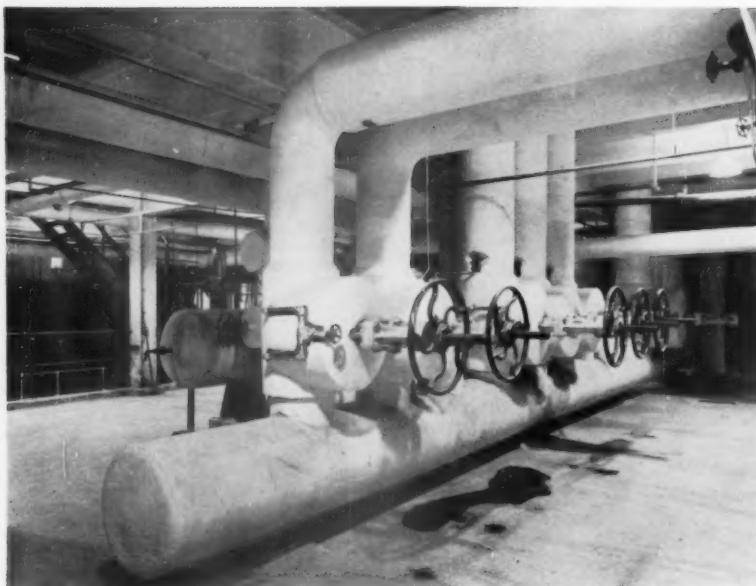
Gases are drawn from the furnace into the cascade evaporators and then into the Koppers precipitators. A steam air heater is used to heat the draft air to the furnace to 300° F.

The green liquor clarifier is a steel tank 40 ft. in diameter by 15 ft. high and has only one compartment. The dregs from the green liquor clarifier are removed to a mixing tank from where they are pumped to a dregs washer. Green liquor overflow from clarifier flows into green liquor storage and green liquor is pumped to a Dorr-Oliver lime slaker. Reburned lime from a 3170 cu. ft. lime silo is fed to the slaker by means of screw conveyor controlled by a Reeves variable drive. The slurry from the slaker flows to three continuous causticizers, then to a Dorr-Oliver white liquor 4-tray clarifier. Clarified white liquor overflows to a storage tank.

The lime mud from the white liquor clarifier is pumped to a mud washer which is a Dorr-Oliver four-compartment thickener of the combination type and is 35 ft. in diameter and 25 ft. high.

Lime mud from an Oliver rotary filter is fed by a screw conveyor to a 9 ft. diameter, 250 ft. long Allis-Chalmers lime kiln with a 37 ft., 4 in. chain section. ●





### Giant Header for Hinton . . . Shipped Complete

This main steam header, fabricated in the Crane Co. shop, was shipped ready for installation. It comprised 600 lb. No. 76/2 U butt-welding end gate valves (left to right): two 8 in. and three 10 in. with bypass, one 16 in. gear operated valve, two 6 in. with bypass, and two 4 in. without bypass. All welds are stress relieved.

### Steam And Power

Generation of steam takes place in one recovery boiler, fired with black liquor, one power boiler fired with natural gas and bark and one power boiler fired with natural gas only. In these three boilers the steam pressure is 625 psig at 750° F.

The capacity of the recovery unit is 210,000 lbs. of steam, per hour, while the others generate 200,000 lbs. per hour each. The two power boilers are by Foster Wheeler and the recovery boiler is by Combustion Engineering. The combination bark and gas-fired boiler has pneumatic spreader stoker equipment. It is equipped with Diamond sootblowers and a pneumatic installation to reinject the partly burned fly ash into the furnace. Multiclones are under the air pre-heater. Feedwater regulators and combustion controls were furnished by Bailey Meter Co.

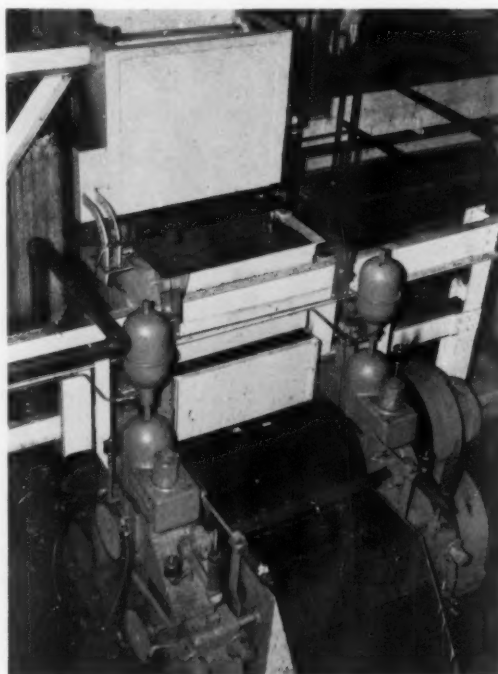
Power is generated in a 21,760 kw hydrogen-cooled generator at 13,800 volts, driven by a double automatic extraction turbine operating at 600 psi and 750° F. at the throttle and 1.5 in H.g. abs. at the exhaust, manufactured by General Electric Co.

The extraction takes place at the 5th stage to the 180 lb. system, at the 8th stage to the 80 lb. header and

automatic extraction valves are installed to regulate the pressure at these stages.

### Salvages Bark for Fuel . . .

Bark presses are becoming more important in making mill savings. At Hinton this Hymac-Fulton bark press dewater the residue from drum barkers after it has passed through a Gruendler hog. The bark goes to a Foster Wheeler power boiler.



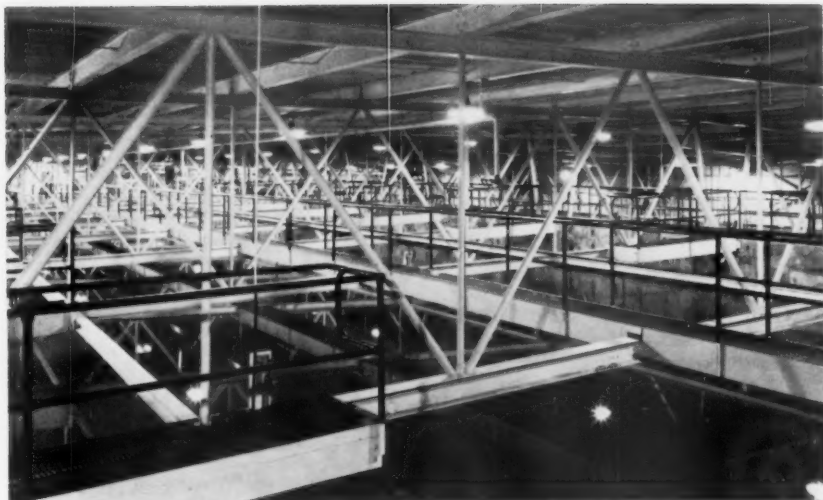
### Waste Disposal Facilities Are Adequate

Waste disposal system consists of three out-falls. The general sewer takes high b.o.d. waste water and settleable solids from the drains in all departments. The caustic sewer handles the wastes from the two caustic stages of the bleach plant. The acid sewer handles the wastes from the other four stages.

The general sewer enters a pond having a retention time of 72 hours at a flow of 8500 gpm, which is 1,820 ft. long, 520 ft. wide, 5 ft. deep. The sewer is also equipped with a gate so that the pond may be by-passed for cleaning purposes. The pond effluent flows over a wooden weir and down an aerating rock bed to the river. The caustic and acid and sewers each flow through Parshall measuring flumes down a rock-bed trench joining with the pond effluent.

North Western has taken elaborate precautions to insure the purity of the mill's waste waters which are returned to the Athabasca river. Adequate facilities have been installed to minimize stream pollution.

All the underground sewer piping is vitrified pipe. The acid sewer piping in the bleach plant is fiber glass reinforced polyester. The caustic sewer is stainless steel.



## 33 Million Gallons per Day Plant at Hinton Designed . . . For Glacial, Turbid, Hard Water

Treatment Plant Functions Either as:

1. A Clarification Unit, or
2. Joint Softening-Clarification Unit

Seasonal changes in the hardness of the Athabasca River make these alternating features of the Northwest Filter Co.-designed plant desirable.

The recarbonation grid system, utilizing boiler stack gas, efficiently neutralizes the pH from 11.0 to 7.8 in the brief flow between the settling basin and the sand-gravity filtration units. The high efficiency of this system is achieved by hydraulic diffusion jets, which are strategically located in a grid pattern in the transverse flume below the skimming weir of the settling basin.

A feature of this plant as designed by the Seattle firm is the automation of flow demand, backwashing operations, and chemical proportioning to insure minimum chemical costs and to eliminate the need for shift operators under normal conditions.

The raw water is automatically injected with chemicals prior to division into two equal flows, one for process water, the other for service water. Each stream is passed through a primary and secondary mixing chamber, and then through a series of four coagulating chambers. The mixing and coagulation is accomplished without using any mechanical agitation or moving equipment of any kind. Carefully designed, stainless steel, hydraulic mass mixing elbows develop a rapidly settling floc at all conditions of water or flow. Essentially no maintenance

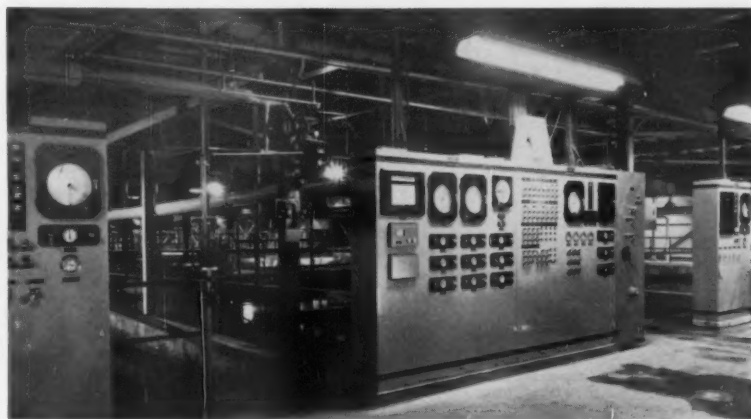
of this equipment is required.

From the coagulating chambers the water flows through a venturi wall into two parallel settling basins. The out-flow passes over a skimming weir and downward past the recarbonation grid. At this point the service water is run directly into the unfiltered clearwell, while the process water flows through conventional rapid sand filters with stainless steel laterals.

Three "double-wash" type filters in parallel, but individually backwashed, keep mechanical equipment requirements to a minimum.

All functions of control in the filter plant are performed by a pneumatic control system. Sluice gates and valves are actuated by mill power air, while the controls are supplied with mill instrument air. The filter plant control is a "demand" system. Each pair of filters is equipped with a rate control valve which responds to a signal generated in relation to the clearwell level.

This control system maintains a constant level in the clearwell, and the rate of each filter is modulated simultaneously in accordance with the



### All Controls on Operating Floor . . .

In large middle board, left half is chemical panel, right half is master panel.

withdrawal rate from the clearwell. Basin levels are controlled at a constant level, with the raw water inlet valve also responding to mill demand.

Backwashing of the filters is completely automatic, and the backwash cycle may be initiated automatically either by a measured, pre-set loss of head or by a time cycle controller. All phases of the backwash cycle are electrically monitored to avoid any possibility of the backwash pump causing flooding over the filter walls or running against closed valves. Raw water flow into the plant is measured, recorded and totalized. It is from this measuring device that the chemicals are automatically proportioned over the entire flow range of the plant.

All plant controls are mounted on these panels and provision is made so that any single function of the entire plant may be switched from automatic and performed by manual control. Positions of all gates and valves in the plant are indicated on the control panels. An alarm system, providing both local and remote alarms, indicate abnormal high or low clearwell level. An electrical supervisory interlock system monitors at all times, so that any failure will return the process to normal operation.

Already proven in operation, years of trouble free service, while producing low cost water with only a fractional ppm of color and turbidity, are confidently expected from this plant. ●

### Features of Construction

The two-story administration building is a wooden frame structure with the outside in rustic finish, the inside in sylvaply. Large windows overlook the Canadian Rockies.

The laboratory walls in machine building are red brick with green

"Natco" tile lining inside.

With the exception of the Pulping Group, most buildings consist of structural steel framework on concrete foundation, with concrete floors and insulated, corrugated transite siding on steel girts.

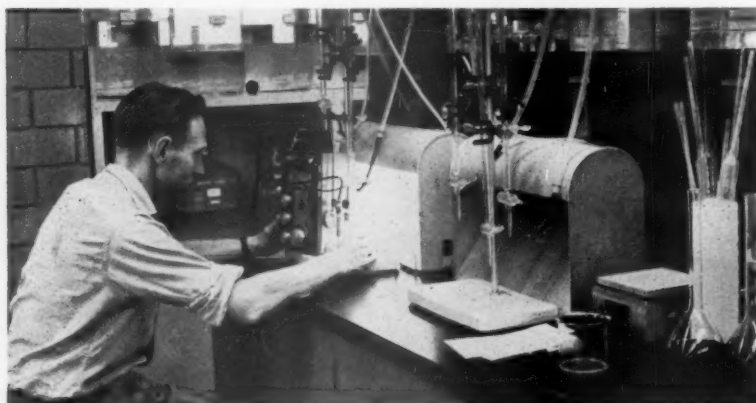
The Pulping Group building (digester and bleach plant) is a concrete structure with red brick siding. All the buildings have precast concrete roof slabs supported on steel purlins. None of the buildings is equipped with windows. The light is supplied artificially and ventilation system keeps a required temperature.

A Custodis stack for the recovery plant is 250 ft. high, with 22 ft. bottom outside diameter, bottom wall thickness of 12½ in. and lined with Clayburn solid brick laid in penchlor-acid-resistant cement. Stainless steel flue opening lintels are designed to resist wind stress, temperature, etc., and since Hinton is in an earthquake zone, provision is made for seismic coefficient of 6%.

Hinton is the first major plant in the industry ventilated with fiberglass piping, says Industrial Coatings, which supplied it, also Type 357 stainless steel pipes. Standard Iron and Coatings Engineering Works supplied 2,500 tons of fabricated structural steel and Dominion Bridge did steel erection.

Howard Simons Ltd of Vancouver, B.C., were consulting engineers on the project and Oliver Laakso was the engineer in charge at the site for the Simons firm. ●

See PULPWOOD SECTION for  
two more Hinton stories



### First University of Alberta Students Go to Hinton . . .

. . . a group of young men just graduated this June from province's university have decided to make pulp and paper their career. In this remote mill, are extensive laboratory facilities, as shown above.

### St. Regis-St. Paul Merger . . .



### St. Regis Sites in Northwest

Hinton—pulp mill. Troy, Libby and Klickitat—Neils sawmills, possible paper mill sites. Tacoma—Pulp-paper mill and new St. Paul-Tacoma division. Vancouver—bag plant.

### ST. REGIS PAPER CO.

150 East 42nd St.

New York 17, New York

July 31, 1957

### TO THE HOLDERS OF THE COMMON STOCK OF ST. PAUL & TACOMA LUMBER CO.

Notice is hereby given that St. Regis Paper Co. has declared effective as of 9 A. M., Pacific Standard Time, Aug. 1, 1957, the Offer of Exchange made by it to the holders of the Common Stock of St. Paul and Tacoma Lumber Co. pursuant to the Prospectus dated June 24th, 1957, heretofore mailed to all such holders. It is expected that certificates for the initial delivery of shares of Common Stock of St. Regis Paper Co. will be ready for delivery by the Depository and Exchange Agent not later than Aug. 15th, 1957.

St. Regis Paper Co.

Roy K. Ferguson

Chairman of the Board

William R. Adams

President

Reproduction of advertisement that appeared in West Coast newspaper.

### What it Means:

133,700 acres of fir and hemlock near Tacoma, Wash., for St. Regis (one fourth old growth, the rest second growth). A sawmill in Tacoma (already been supplying chips to St. Regis mill there) and plywood plant in Olympia, Wash.

St. Paul-Tacoma was organized in 1888. Lumber production between 90 and 100 million board ft. annually. Only about 40 sawmills in the country are this big.

Before merger, Roy Ferguson, St. Regis chairman said: "The great timber resources made available by the J. Neils Lumber Co. acquisition (300,000 acres) are capable of sustaining at least an additional St. Regis pulp and paper mill in Montana and possibly another one in Washington to be built at some future date."



# Kraft Mill Extends Digester Life

- ✓ How Covington solved pulp industry's "costliest problem"
- ✓ West Virginia engineers carefully study alternatives
- ✓ Then they decided for overlays . . . before critical pressures
- ✓ Tyrone, Luke and Charleston provide mill experience

**BY EDWARD W. HOPPER**  
Specialist in Metallurgical and  
Corrosion Problems\*

● When the Covington, Va., mill of West Virginia Pulp and Paper Co. decided to overlay their carbon steel kraft digesters in 1955, they were not shooting in the dark for any method which might offer temporary relief from the problem of kraft digester corrosion. Stainless steel overlay had already been thoroughly considered from the standpoint of the physical effect on the carbon steel vessel, from the galvanic corrosion view, and on the basis of safety.

The chief engineer of West Virginia, Charles J. Sibling, has stated that corrosion is the most costly item in keeping a pulp mill operating. Recognizing this fact, the company has made serious attempts to stop or reduce corrosion and the cost of corrosion by choosing the proper or best materials of construction. They insist on soundly engineered equipment, properly fabricated and welded. Added emphasis is also given to this program by the desire to make West Virginia Pulp and Paper Co. mills "safe places to work."

Like every other company operating kraft mills, West Virginia was faced with the very serious and expensive problem of kraft digester cor-

rosion. However, they were not satisfied to sit idly by and take digester failures for granted. A series of meetings to discuss all known methods for combating corrosion was set up. Attention was given to steel composition and thickness of digesters, to alloy lined and alloy clad digesters, to spray-metallizing and to stainless steel overlay.

## Tests Made with Overlay . . .

Five years ago stainless steel overlay of kraft digesters was relatively new. It was not untried, however, as physical tests had been carried out which indicated that type 310 stainless steel overlay properly applied did not reduce the physical properties of the carbon steel-stainless composite below those required by the ASME Code for Unfired Pressure Vessels. Laboratory tests had also been run which indicated that there was little or no danger of galvanic attack on the carbon steel adjacent to the stainless. In addition, there were several small installations of stainless overlay which had been in service for about a year. These showed on careful inspection no apparent attack on the stainless overlay or carbon steel adjacent to it after careful inspection.

All phases of stainless overlay application and its possible effect on digester life and safety were thoroughly evaluated in meetings with the members of the engineering staff and Walter B. Parker, asst. chief engineer, Hartford Steam Boiler Insurance and Inspection Co. Only after all questions were answered to the satisfaction of all persons involved, was the go-ahead given to try out overlay.

## First Use at Tyrone Mill . . .

It was decided to go ahead with the overlay in the digesters at West Virginia's Tyrone, Pa., mill. However, the overlay areas permitted were to be

limited in size. The installation was carefully supervised, with representatives of the central engineering department and the insurance company present.

These initial overlays were installed about 5 years ago. The smallest area covered was approximately 3½ sq. ft. and the largest 57 sq. ft. The type 310 stainless steel was manual arc applied in a series of stringer beads to give a shingled effect. The coating was aimed at ⅜ in. in average thickness. These overlay areas and the entire digester surface were carefully inspected after 6, 12 and 18 months of operation. There was little or no evidence of attack on the stainless and no sign of accelerated attack on the carbon steel adjacent to it.

The wisdom of the use of stainless overlay on these digesters is indicated by the fact that they are still in service and apparently good for many more years of productive life.



## Quotable Quotes . . .

ED HOPPER (left), author of this article—"West Virginia is not just interested in arresting corrosion. It applies the knowledge developed in order to reduce or eliminate the factors responsible."

CHARLES J. SIBLER (right), chief engineer, West Virginia Pulp and Paper Co.—"Corrosion is the most costly item in keeping a pulp mill operating."

\*EDWARD W. HOPPER, who wrote this article especially for PULP & PAPER, has long been recognized as one of the leading authorities on kraft mill digester corrosion and was an active and prominent member of TAPPI's Corrosion Committee for years. He is serving as consultant in these fields to J. F. Pritchard & Co., West Virginia Pulp and Paper Co., and others. He attended Pratt Institute and Columbia University and served as assistant to Prof. Colin G. Fink and Lincoln T. Work. With Dr. Fink, he developed the first continuous electrolytic strip tin plating process. Mr. Hopper put the first electrolytic tin line in operation when with Crucible Steel Co. of America.

### Then Luke Mill Got in the Act . . .

Based on the results obtained at Tyrone, it was decided to utilize the procedure on the digesters at the Luke, Md., mill. These digesters had suffered considerable thinning, especially in the domes and upper shell courses. Stainless type 310 overlay was installed in areas ranging up to 218 sq. ft. per digester. In one case, the entire dome and part of the upper shell course was covered. These digesters are also in service after three years and appear to be good for many more years of useful life.

The Luke mill had studied its digester corrosion pattern well. Thorough inspection indicated that in this mill, most of the corrosion came in a band just above and below the upper knuckle radius. On that basis, they ordered and installed three new digesters with the susceptible areas overlayed before the digesters were placed in operation. At the moment, this approach appears to be very far-sighted. It gives protection to the areas known to be subject to localized thinning. However, it leaves the normally unattacked areas without excessive, unneeded protection.

The Charleston, S.C., mill has also installed large areas of stainless overlay in order to combat the localized corrosion they have experienced.

### Decision Reached at Covington . . .

About a year ago, the Covington mill decided on a program of digester overlay. Their digesters were suffering from severe localized attack largely confined to the upper shell courses and domes. The careful inspection program had shown the pattern of attack and the expected life of the digesters based on the existing rates of attack.

With this information on hand, John House, plant engineer and E. K. Scholz, pulp mill supt., called a meeting with representatives of the engineering, maintenance and operating staffs present. This group decided to overlay the affected areas before the shell thickness reached the stage where reduction of pressure would be required. A minimum wall thickness measurement was chosen well above the minimum required for the maximum operating pressure. All areas under this minimum shell thickness were to be covered with the normal manual arc welding process using type 310 lime coated a.c.-d.c. stainless steel rod.

In order to expedite the work and not put too heavy a load on the mill welding and maintenance force, Mr. House picked J. F. Pritchard & Co., Engineers and Constructors, of Kansas City, Mo., to carry on the work.



### Overlay Work at Covington Mill

The job was set up so that the West Virginia inspection and Audigage crew would take the shell thickness readings. These readings were taken and plotted on their regular grid pattern. In order to determine the outline of the critical areas more accurately, intermediate Audigage points were taken. This permitted outlining the overlay areas on the digester shell quite accurately without extending the coverage unnecessarily over the unattacked areas. The Audigage testing was carried on over weekends in order to avoid interference with the welding.

### How Operation Was Set Up . . .

The operation was to apply approximately 100 mils of overlay, using 8. plus lbs. of rod per sq. ft. The three man welding crews were set up to rotate so that two men were welding while the third man spelled and took care of adjusting the welding machines, supplying electrodes, or any other necessary work. This gave each man an hour of welding and one half of snelling. The welding was carried on from the adjustable scaffold pioneered by West Virginia.

Good ventilation is a requirement for such continuous welding in an enclosed space in order to remove the fumes and dust from the welding rod and flux coating and the nitrous oxide fixed by the welding arc. Dave Whitehead, supt. of maintenance, arranged for a small portable wooden shed to be placed over the manway with a large capacity exhaust fan installed in one side. This gave adequate ventilation, drawing clean air through the bottom

digester outlet and exhausting it through the top manway and fan outlet.

Downtime on digesters was a serious problem because of its effect on production. One digester was taken out at a time and returned to operation as soon as the work was completed and inspected. It was estimated originally that 20 sq. ft. per day could be covered using 3-three man welding crews. It was possible, however, to increase the production so that 30-33 sq. ft. per day was an average daily figure. The entire job was quoted by J. F. Pritchard on a fixed cost per sq. ft. basis, utilizing the procedures outlined in TAPPI Monograph #12.



### "Go-Ahead" is Given . . .

. . . but only after insurance specialists and mill staff are satisfied. LOUIS DE LA GRANGE (left), field engineer, West Virginia, and WALTER B. PARKER (right), chief engineer, Hartford Steam Boiler Insurance and Inspection Co., Mr. Parker, familiar with digesters, held meetings with engineers.

### Success is Demonstrated . . .

Ten digesters were given the stainless overlay protection in the thinned areas. These ranged from 281.4 to 550.5 sq. ft. for a total coverage of 3965.5 sq. ft. The work was completed in about six months working five days per week.

All these digesters are back in operation and due to the protection afforded by the stainless steel layer, they are in better condition to withstand corrosion than when they were originally installed.

A further advantage from this type of protection is that the overlay can be extended at any time to cover other areas which may thin down locally. Therefore, in 10 to 20 years, it is possible that some of the digesters may be completely covered whereas others may have no more than has been installed to date. In every case, only those areas requiring protection against further thinning will be covered, and only as needed.

### What Record Shows . . .

Some of the statistics on this job follow:

3965.5 sq. ft. of overlay applied in 10 digesters.

Smallest area covered=281.4 sq. ft.

Largest area covered=550.5 sq. ft.

32,745 lbs. of type 310 lime-coated, AC-DC stainless welding rod used.

Average welding rod per sq. ft.=8.25 lbs.

4430 lbs. of welding rod stub ends generated.

Average welding rod stub ends per sq. ft.=1.11 lbs.

Percentage of rod as stub ends=13.5%.

Total hours of direct labor=9,813 hours.

Average direct labor per sq. ft.=2.48 hours.

Average area covered per 24 hour day=29 sq. ft. (This includes starting, changing location and digester, and touching up.)

It is estimated that 237,930 linear feet of stringer bead passes were applied in completing the overlay.

West Virginia Pulp and Paper Co. is not just interested in arresting kraft digester corrosion. The engineering, operating and research organizations are studying and applying the knowledge which has been developed on the subject in order to reduce or eliminate the factors responsible for corrosion.

The best answer as to whether this program has been a success at West Virginia Pulp and Paper Co. was expressed recently by Mr. Sibling when he stated that not one single digester has been replaced since the program was started. ●

### A New Mill Planned for Nova Scotia . . .



### Coming . . .

Another mill here . . . present mills in Nova Scotia: Mersey (groundwood, sulfite and newsprint) at Brooklyne; Minas Basin (groundwood and paperboard) at Hantsport; Canadian Keyes Fibre (molded pulp) at Hantsport; La Have (groundwood for New Haven Board & Carton Co.) at New Germany; Halifax Power & Pulp (groundwood) at Sheet Harbour. New mill builders are planning. . . .

## To Make "Swedish" Pulp . . .

### . . . and introduce Scandinavian forest practices

There's a lot of excitement these days in Nova Scotia now that the province has a 50-year agreement with Nova Scotia Pulp Ltd. for a 350-ton-a-day market pulp mill.

The big feature of this new mill, in addition to the fact that it aims to duplicate Scandinavian pulp in North America is that it will introduce Swedish forest practices into eastern Canada. The provincial forestry experts predict yield of land will more than double, even triple, with proper management.

Officers of the new company are Karl A. Clauson, president and A. Gordon Cooper, Q.C., a Halifax lawyer, secretary. Mr. Clauson is president of Stora Kopparberg. Stora will be associated with the new company and will provide forest management and technical know-how and laboratory research facilities.

It is understood that preliminary engineering surveys have been completed by the Howard Simons firm of Vancouver, B. C., in conjunction with engineers from Stora Kopparberg. Detailed engineering is now going ahead. Actual construction is slated for not later than June, 1959. Mill startup is

tentatively scheduled for Jan. 1962.

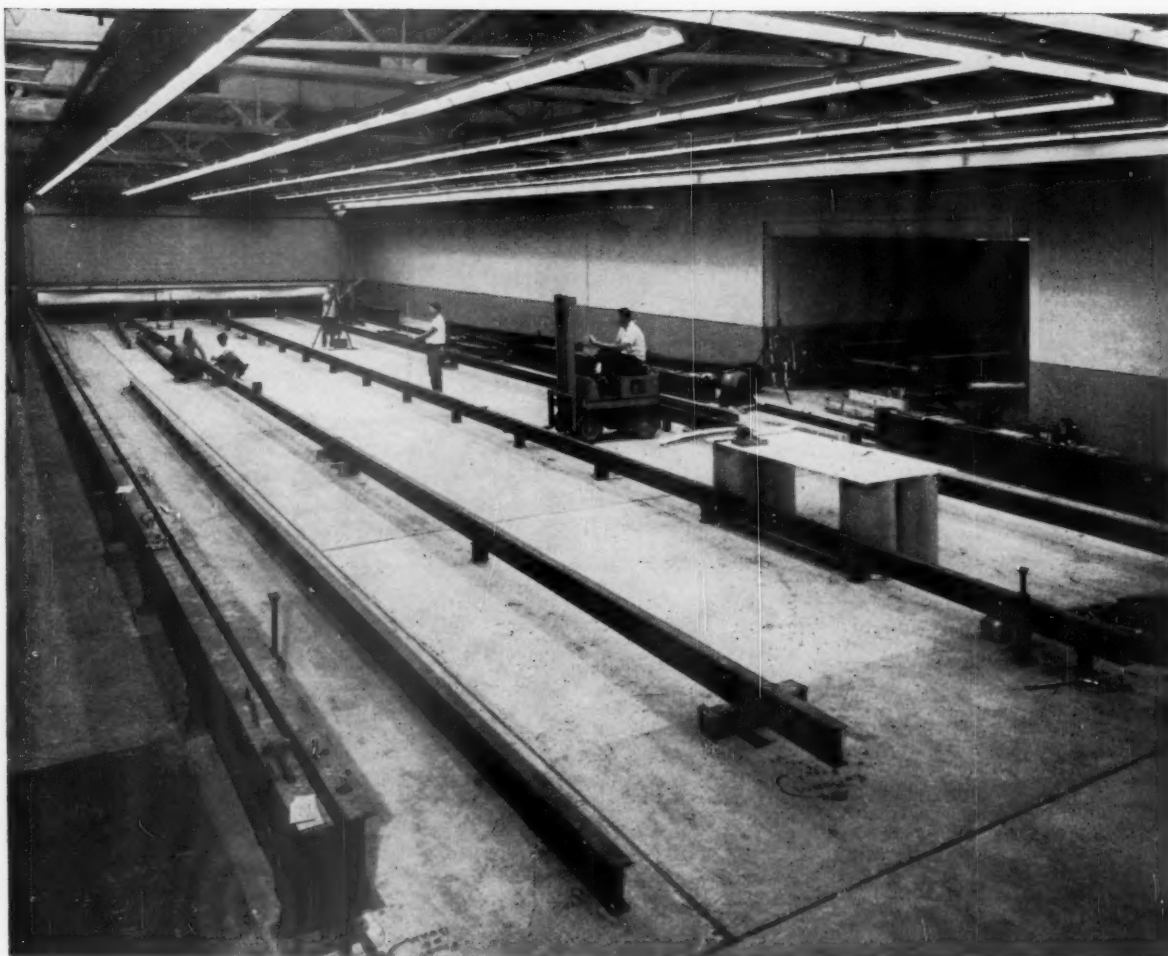
Nova Scotia is one of the low cost areas in Canada and this, coupled with the technical knowledge and advice from Stora, is expected to make it an exceptionally efficient mill. The first unit will be 350 tons a day, but the mill will be engineered for 700 tons with provisions for doubling to that figure within five to ten years.

The forest license covers some 1,200,000 acres with a stumpage cost of \$1 per cord. Tree species include black and white spruce, balsam and fir. Forest surveys have been made under Stora's chief forester.

The proposed location is ideal. It is on (12-month ice-free) tidewater, well situated to service both the Great Lakes area through the St. Lawrence Seaway and the Atlantic Coast. Another advantage is that Nova Scotia is some 800 miles closer to Europe than New York City for shipping. A prime market area will be Latin America, too.

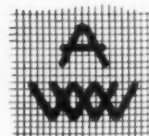
It is understood that recent Stora Kopparberg technical development will be used by the Nova Scotia mill, although at this date, no decision as to process has yet been announced. ●





This Finishing Table, under construction, will be capable of finishing wires as wide as 408" and up to 229' in length. It is scheduled for operation in September. Like all of the new, highly specialized equipment recently installed, it was designed by Appleton Wire Works engineers to meet the changing requirements of the paper industry. Appleton Wire Works, Inc. General Offices, Appleton, Wis. Plants at Appleton and Montgomery, Ala. International Wire Works, Menasha, Wis., an affiliated company.

**APPLETON WIRES ARE GOOD WIRES**



# The Secret of Better Chipper Knife Performance

MODERN CONCEPT PRODUCES KNIVES  
CUSTOM MADE FOR EACH WOOD ROOM



By JOHN A. GAINES,  
Chief Metallurgist,  
John W. Bolton & Sons Inc.

It is vitally important that some yardsticks be used to measure chipper knife performance. These yardsticks vary widely from one mill to another. The ones most frequently used, either singly or in combination, are:

1. Number of grinds per knife life
2. Sawdust count
3. Average knife width loss per grind
4. Condition of chips
5. Percentage of chips of acceptable size
6. Hours of cutting before dulling
7. Tons, cords or rafts cut before dulling
8. Total tons, cords or rafts cut during knife life

In any performance evaluation, the most important consideration is how well the chipper knife performs under the particular wood room conditions of the individual mill.

The two properties desired most in a chipper knife are directly opposed to each other; no knife contains both in maximum degree. Wear resistance, the ability to maintain a keen cutting edge during prolonged service, requires a different steel chemistry and heat treatment than toughness, the resistance of the knife to excessive nicking from foreign material. Because of this, no standard knife can achieve a high performance evaluation under all the varying operations and chipping conditions that exist. Variations in heat treatment alone cannot provide all the different properties necessary for the variations in chipping conditions encountered. Variations in steel analyses are necessary as well.

Some woods and some operations cause more nicking in a knife than do others. For satisfactory chip production under rough operating conditions, a knife must have those qualities that resist nicking and also maintain good edge properties from the standpoint of wear. It is also apparent that a knife designed for this type of operation cannot achieve the highest rate of performance in a mill chipping clean wood, where prolonged edge maintenance is desirable.

## Specific Knives for Specific Conditions

Faced with the fact that there can be, with existing metals and processes, no all-purpose chipper knife, ideal for every chipping condition, we at Bolton decided that the logical alternative was to custom craft chipper knives for specific wood room operations.

First we began a specialized study of many mill operations and of different high alloy steels. Laboratory tests of special steels were made with variations of heat treating procedures and of grind sequences. Then followed numerous field trials under widely different conditions in the major timber sections of the United States.

As the result of this research, we assembled a large amount of background information for making our 'Blue Devil' High Speed Chipper Knives. However, because they are custom crafted for individual operations, information about the chipping conditions of each new mill still has to be secured.

## Type of Operations Important

Among other questions, mill operators are asked about the type of wood used and its condition prior to chipping, the type of failure found in unsatisfactory knives, facts about the most satisfactory knives that have been used, facts about the chipper machine itself, and how the operator evaluates the performance of a chipper knife.

After careful study of the answers to the field survey, Bolton metallurgists specify the chemistry of the metal to be used. Chemical elements such as carbon, chromium, molybdenum, vanadium, tungsten and others combined with the iron parent metal in various proportions, each add individual properties to the resultant steel. Steels of correct analysis for specific desirable properties are inventoried in a variety of sizes. The heat treatment process is carefully specified. This is done efficiently because of the accumulated information gathered from previous laboratory and field tests.

## Edge Impact Resistance Measured

In laboratory testing, edge impact resistance is measured accurately by a special edge-testing, Bolton-designed machine to determine the force required to cause a nick, how deep the nick will be, and how much deflection the knife edge will stand before fracture.

Wear, or the resistance of a steel to wear, is too complex to achieve meaningful laboratory measurement. This is primarily due to: Changes in microstructure created by the generation of heat; Using an abrasive element harder than the matrix of the steel tested; Particle size of the abrasive medium. Accurate wear resisting qualities are best determined through extensive field testing. These facts have been assembled in a file of performance results.

In this manner, 'Blue Devil' Knives are fabricated to meet exactly the individual mill's requirements. Provisions are made in the knife for wear resistance and edge impact resistance in the balance necessary for the best results in chip production.

## Knife Stress Relieved

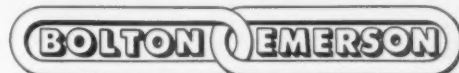
The bluish-black surface color that identifies 'Blue Devil' Knives is the result of another step in their custom heating to provide absolute uniformity of the entire knife from the extreme cutting edge to the back edge.

When the custom crafted knife has earned a high evaluation in chipping performance in the particular mill for which it was designed, absolute duplication in replacement is assured. The numbers etched on the back edge of each knife refer to its detailed record of custom crafting and quality control.

The technique of custom crafting 'Blue Devil' Knives for individual wood rooms and specific problems is indeed a modern approach to the manufacture of chipper knives, and one that can produce highly satisfactory results. At a large Southern mill, chips produced at the end of 2 3/4 hours of cutting were no longer acceptable. Custom crafted 'Blue Devil' Knives are currently cutting acceptable chips after nine hours.

Where all-purpose knives had failed to achieve these performance results, custom crafted knives succeeded because they were designed to solve a specific problem. We at Bolton believe this is the secret of better chipper knife performance.

(For further information send for new Bulletin No. CK-557 or request that a survey be made of your chipping operation at no obligation.)



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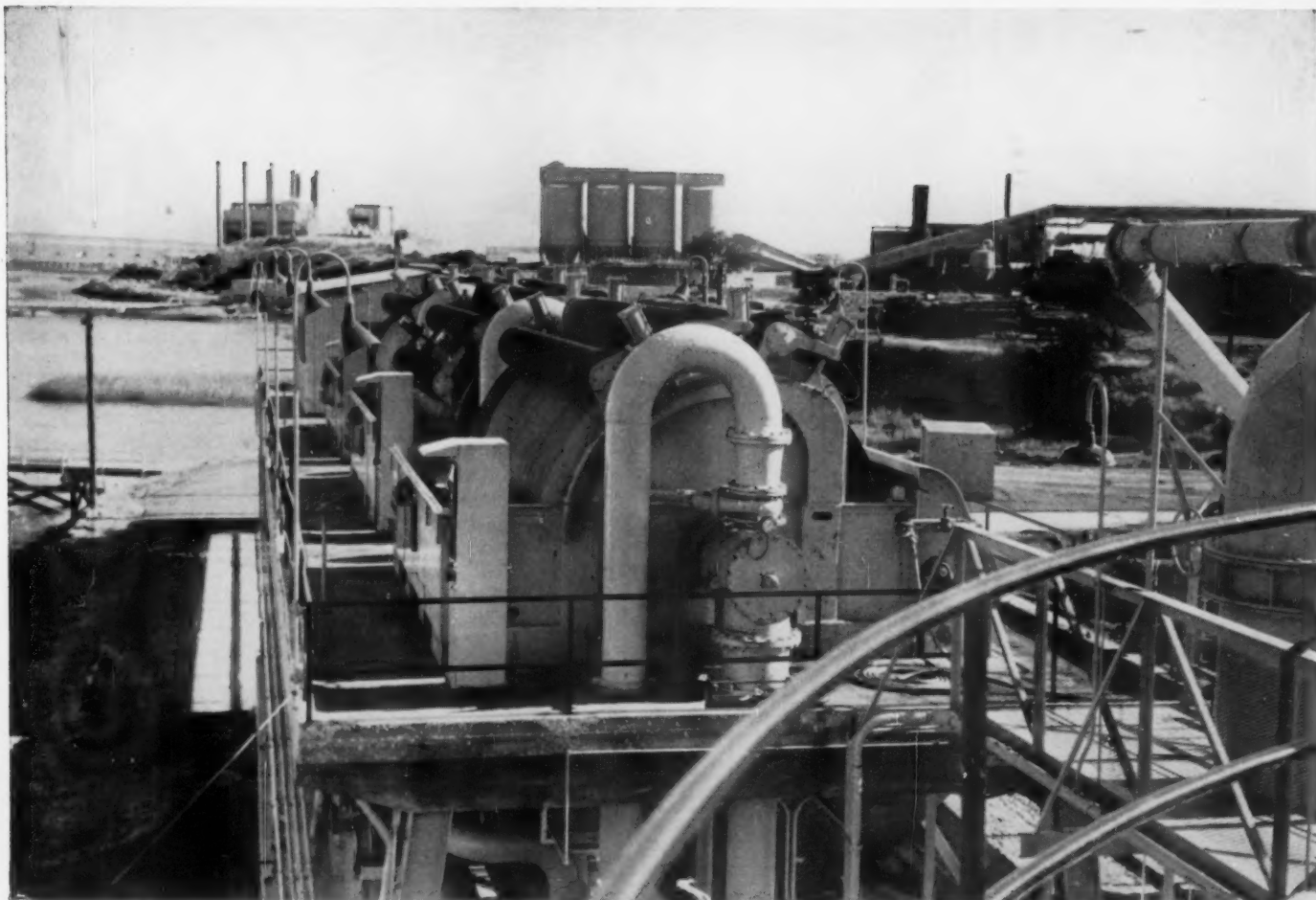
a special tanker to Antioch, Calif., where D-O Thickeners, Valveless Deckers, Ahlfors Screens, an Oliver Saveall, and a Clarifloculator have been installed in Crown Zellerbach's new 400 TPD facilities.

For more information on the complete line of Dorr-Oliver equipment and services for the pulp and paper industry write Dorr-Oliver Incorporated, Stamford, Connecticut.

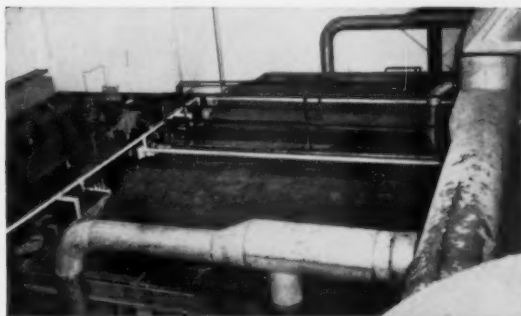


**D-O BROWNSTOCK WASHING SYSTEM AT ELK FALLS COMPANY LIMITED ON VANCOUVER ISLAND . . .** is equipped with three 11'6" x 20' Oliver Brownstock Washers for three stage washing system. A Dorr-Oliver Shredder (not shown), also installed at the Duncan Bay site, shreds the pulp for shipment to Antioch, California via CZ's specially constructed tanker, the S.S. Duncan Bay.





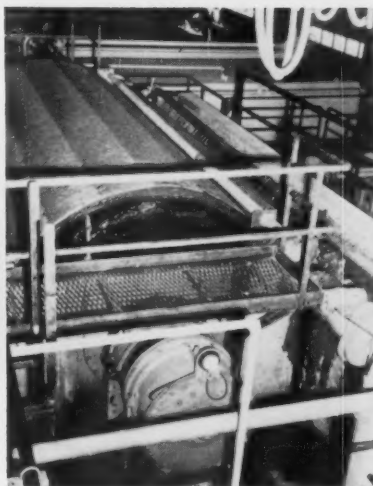
**OLIVER HIGH-DENSITY THICKENERS ON THE DOCK AT ANTIOCH, CALIFORNIA** . . . thicken the diluted stock pumped from the S. S. Duncan Bay to 25% consistency. Stock from these big (11'6" x 16') Thickeners is then carried to storage areas by conveyor belt and a large stacker.



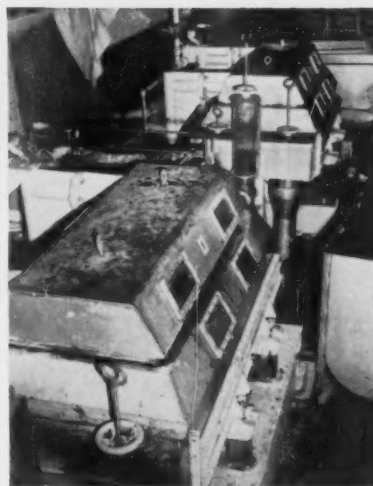
**OLIVER DECKERS IN FIRST PROCESSING STEP INSIDE MILL** . . . after screening stock is thickened on two Oliver 9'6" face x 16' valveless Deckers. A 24" D-O repulper conveyor is installed between the two Deckers.



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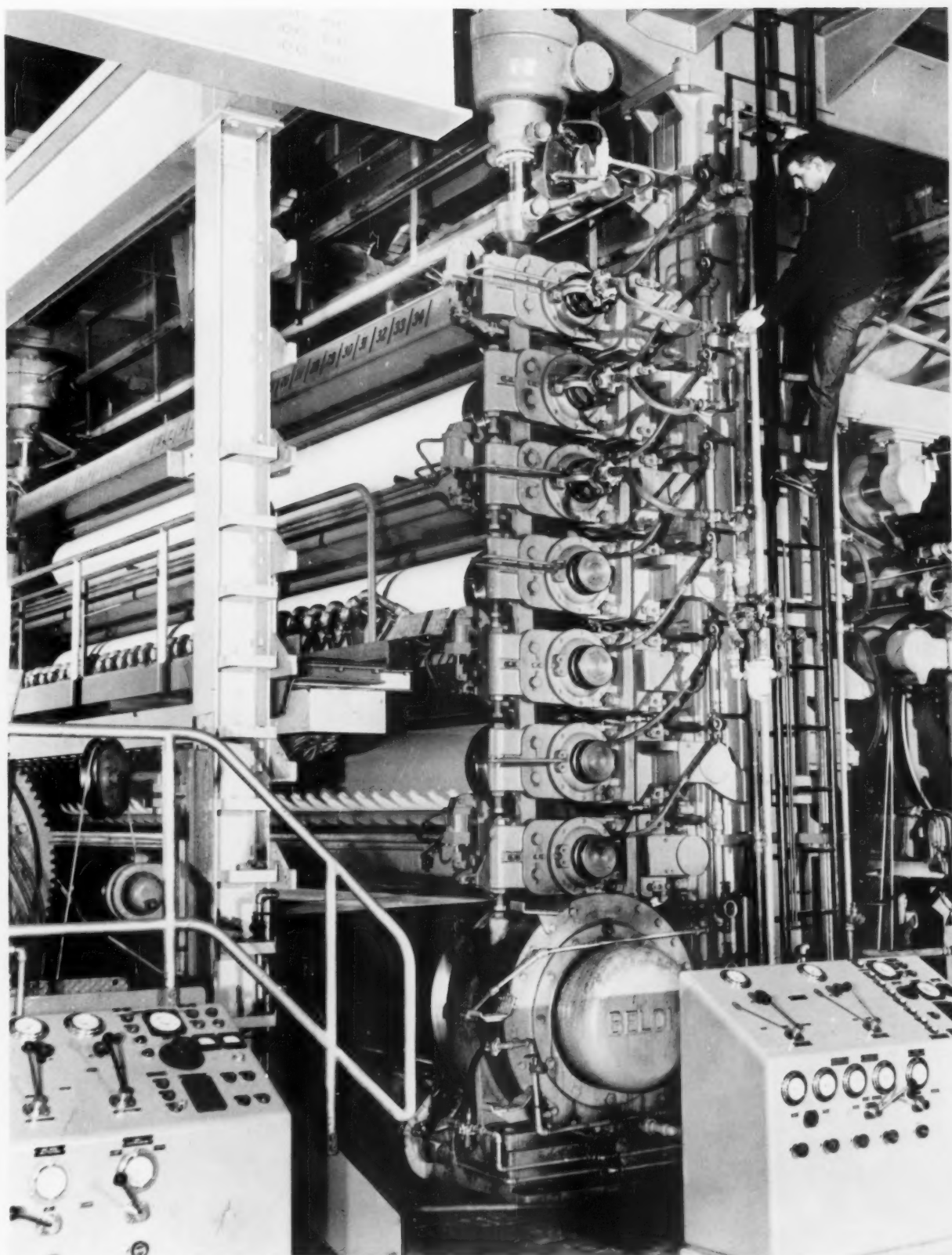
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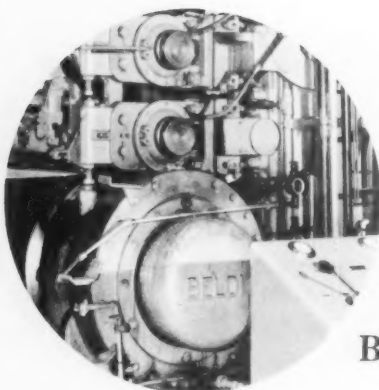
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BOWATERS SOUTHERN PAPER CORPORATION. PHOTO BY J. W. MILLER

*Beloit Openside Calender Stack* Today's wider, higher speed machines have focused increasing importance on the calender's ability to deliver a sheet of constant caliper and uniform surface finish to the reel. For further details, please turn the page.





## BELOIT OPENSIDE CALENDER STACK

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at high speeds with greater safety*

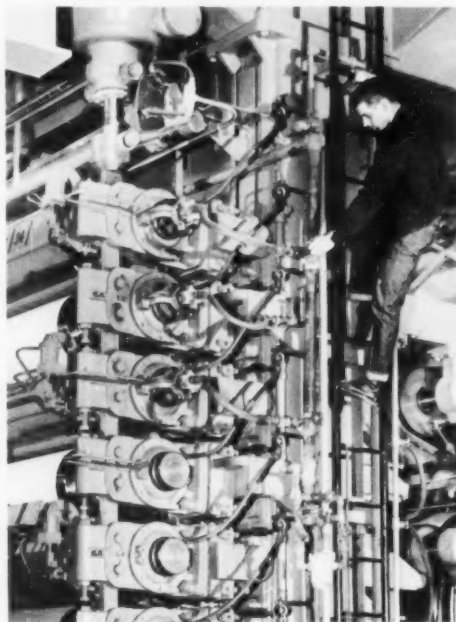
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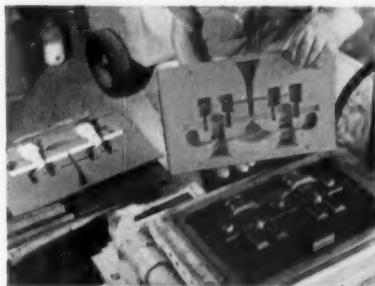
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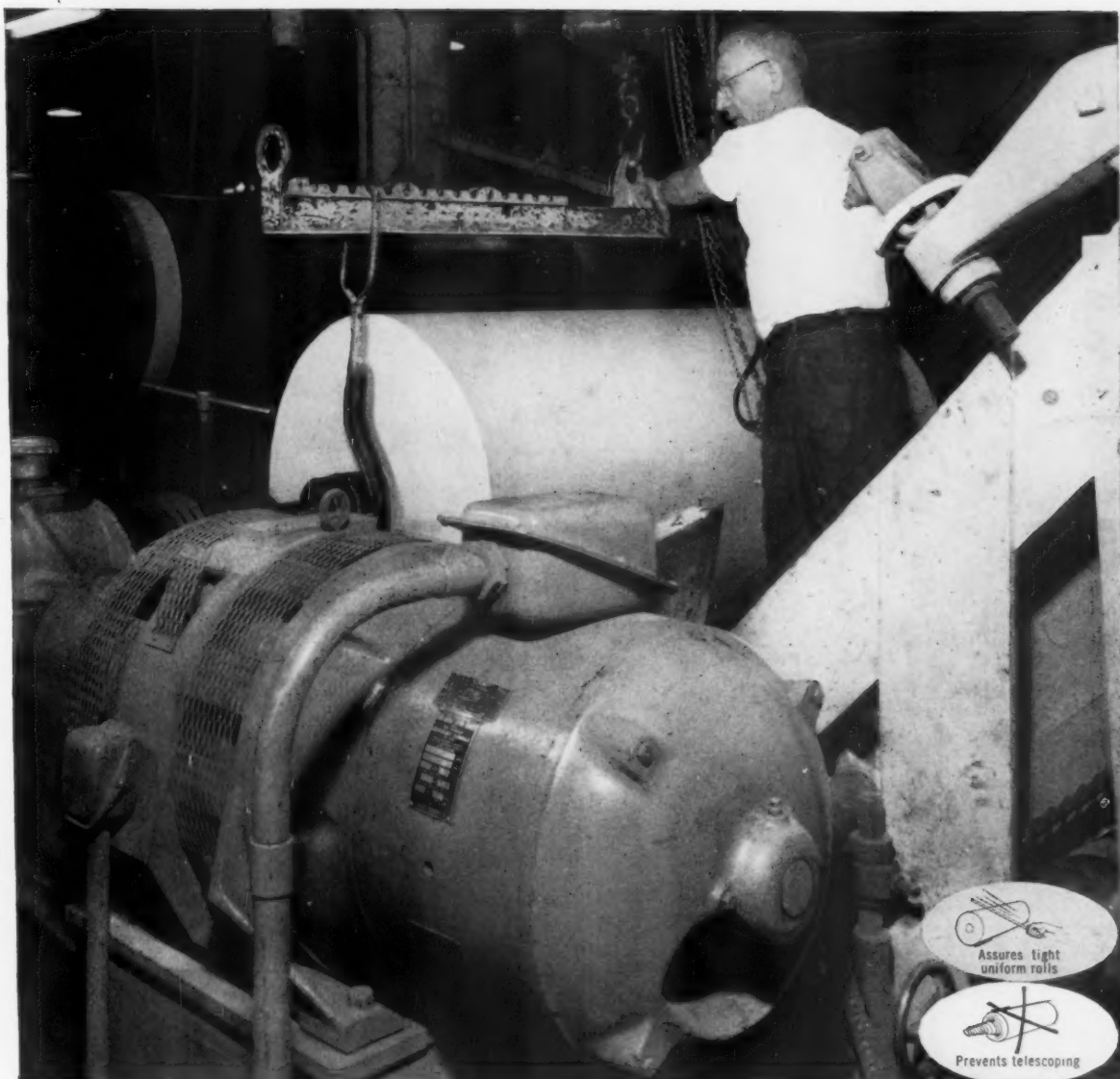
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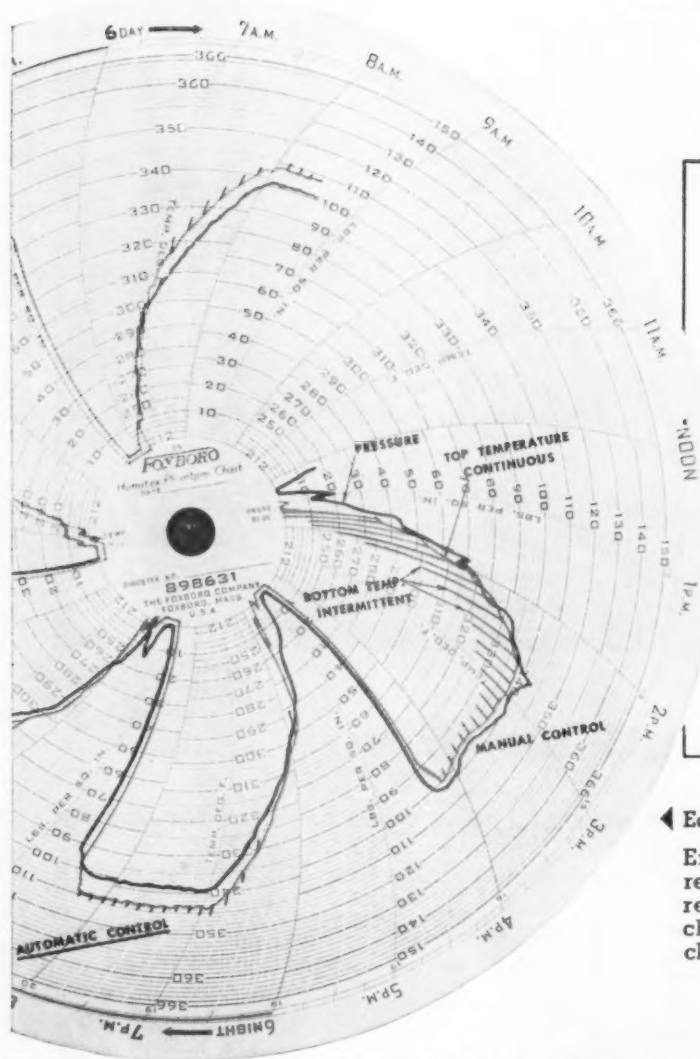
A phone call to your local Louis Allis District Office will bring a skilled Louis Allis sales engineer. He'll gladly study your problem and advise — with no obligation. Or write for Bulletin 611E, "Ajusto-Spede Drives." The Louis Allis Co., 444 E. Stewart Street, Milwaukee 1, Wisconsin.

**LOUIS ALLIS**

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE-SPEED DRIVES

# BIGGEST KRAFT ADVANCE

...New Foxboro system



## Brings radically-improved results

- ▶ Uniform Permanganate
- ▶ Reduced Reject Variations
- ▶ Controlled Circulation
- ▶ No False Pressure
- ▶ Negligible Liquor Pull-over
- ▶ No Boiler Overload
- ▶ Significant Steam Savings
- ▶ Savings in Production Time

## Easy-to-Read Record of Circulation

Exclusive, top-and-bottom temperature readings, as well as digester pressure, are recorded on single Dynalog Recorder chart. (Special two-pen system gives clear-cut record of three measurements.)

# FOXBORO

REG. U.S. PAT. OFF.

# COOKING IN 20 YEARS!

## introduces controlled digester circulation

Featuring automatically inter-related controls for digester steaming and relief, this new Foxboro System for alkaline cooking brings important operating advantages never before possible!

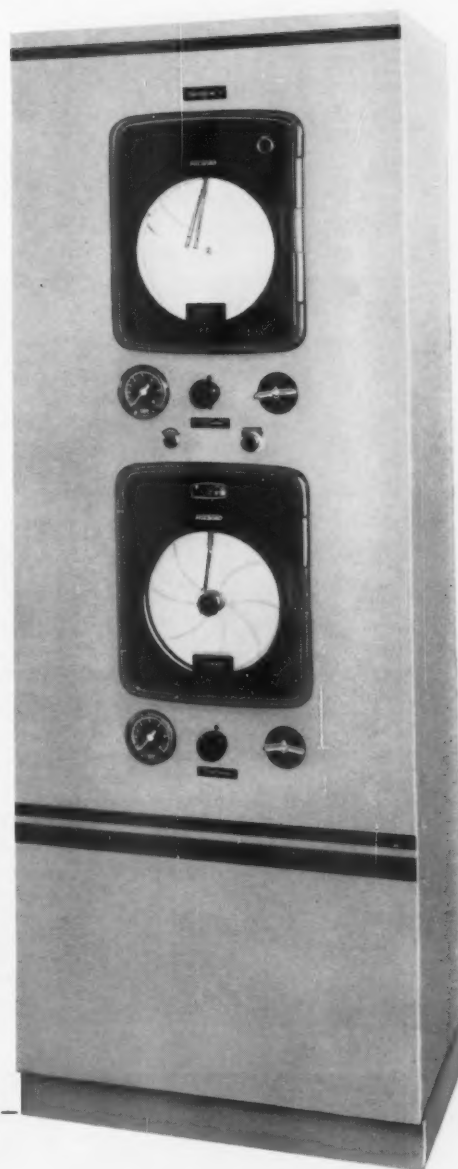
Excellent circulation, with virtually no liquor pull-over, is achieved in part by automatically controlling the flow of relief (in reverse proportion to the steaming rate). This method of relief also maintains the required gas-off regardless of screen plugging. Blow-back, infrequently needed, is automatic.

Circulation is further improved and boiler overload is eliminated because steaming begins with flow control, with bumpless transfer to cam pressure control during the rise period.

Operation is simpler than ever. To start a cooking cycle, the operator turns a single knob. The system completely and automatically controls the entire process until the end of cook.

For full details on this revolutionary new kraft digester control system, just call your nearby Foxboro Field Engineer, or write The Foxboro Company, 999 Neponset Avenue, Foxboro, Mass., U.S.A.

**Packaged Control System**, pre-assembled and integrated in a compact control cabinet, ready to connect and start. Instruments, top to bottom, include: Dynalog Temperature and Pressure Recorder; Relief Flow-Indicating Controller; Cam Pressure Controller; Steam Flow Indicating Controller — plus auto/manual switches; manual controls for relief and steam valves; blow-back push-button and signal light.



## AUTOMATIC DIGESTER CONTROL



# STEBBINS

## *Corrosion-Resistant* LININGS and TILE TANKS



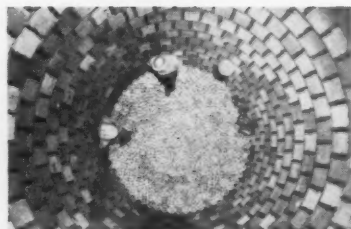
### TILE LININGS

HEDTILE, highly resistant to corrosion, impact and abrasion, can be laid with full corrosion-resistant joint, then bonded to vessel. For chlorinators, reactors, towers, high-temperature tanks, etc. SEMPLATE is used for concrete or steel surfaces — tanks, pits, sewers, flumes, etc.



### WHITE TILE LININGS

Specially developed for low-temperature, mild-service conditions where clearances are small and maximum capacity must be retained. Neat, easy to keep clean. Special Swedish tile for heavy-duty service. For couch and wire pits, beaters, stock chests, dye becks, etc.



### ACID BRICK LININGS

SEMCO and SEMAC Brick are used in vessels subject to severe corrosive effects. High chemical resistance plus superior thermal spall resistance. For digesters, acid accumulators, acid tanks, chlorine dioxide reactors, bleachers, blow pits and primary coolers. Carbon Brick, Fire Brick and Insulating Brick also used as required.



### STOCK AND SLURRY TANKS

Stebbins storage tanks are, in effect, reinforced concrete faced inside and out with vitrified tile. Wide variety of contours and sizes. Walls are designed to carry the fully hydrostatic head in accordance with accepted concrete design. High-density storage tanks, machine chests, clay slurry chests, etc.



### TILE SILOS

Silos for storage of dry solids are built of SEMTILE or SEMBLOK, or combinations of the two, depending upon the size, location and physical characteristics of the material. Material-handling equipment may be carried on the reinforced tile structure.



### MEMBRANE LININGS

Stebbins installs membrane linings, protected by tile or brick, to meet special chemical conditions beyond the protective limits of the brick or tile itself. Complete shop facilities and field crews are available for application of a complete range of sheet and liquid membrane materials.

SINCE 1884  
Specialists in  
Design  
Installation  
and Servicing  
of Linings and  
Tile Tanks

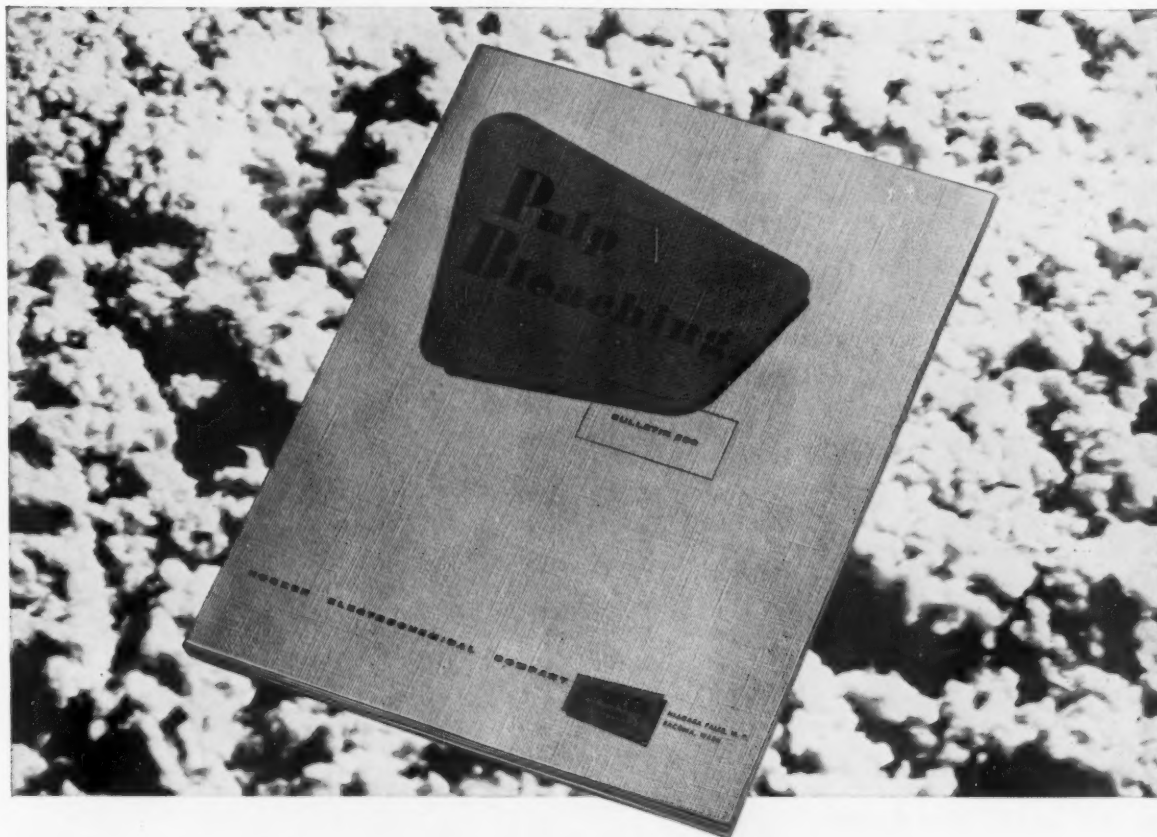
**STEBBINS** Engineering and  
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STEBBINS ENGINEERING CORP. — TOWER BLDG., SEATTLE, WASH

CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — TOWN OF MOUNT ROYAL, MONTREAL 9, CANADA





## New...60 pages of helpful, practical facts you can use for *better bleaching results*

### SECTIONS INCLUDE: (PARTIAL LIST ONLY)

1. Bleaching stages, procedures, and systems
2. Bleaching procedures by types of pulps
3. Hooker chlorination system
4. Hooker chlorine system
5. Sodium hydroxide system
6. Calcium hydroxide system (lime milk)
7. Sodium chlorate system
8. Continuous sodium hypochlorite production
9. Continuous calcium hypochlorite production
10. Chlorine dioxide—methods of production
11. Equipment and materials of construction

For reference in planning a new bleachery—or in getting the most out of your present one—you'll find this new 60-page Hooker manual invaluable.

It sums up for you the most significant recent developments in pulp bleaching, as well as older, established bleaching procedures. It is fully referenced to the technical literature, completely indexed, concisely written by John D. Rue and other members of the Hooker technical staff.

Its 52 illustrations include flow charts of the various processes for generating chlorine dioxide; chlorination systems; automatic system for producing calcium hypochlorite; systems and equipment for handling chlorine and caustic soda.

Tables help you estimate installed costs of continuous hypochlorite processes; compare costs of the various chlorine dioxide processes.

For your copy of this useful manual, please drop us a note or simply write "Bulletin 200" and your name on your business letterhead.

**HOOKER ELECTROCHEMICAL COMPANY**  
1909 Forty-Seventh St., Niagara Falls, N. Y.



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	Wet-End Additives	Press & Tub Sizes	Coating Adhesives	Calender Sizes
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# ROSS

## Air Systems

# 7

## ROSS

## AIR

## SYSTEMS

# ...51

## SEPARATE

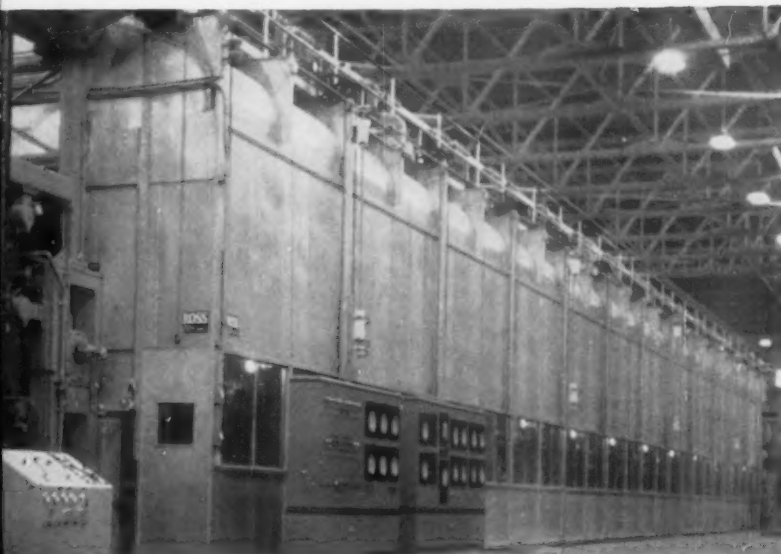
## ROSS

## 'AIR

## UNITS'

*serve  
Bowater's  
Southern  
Paper mill*

Engineered Atmospheres for Better Processing



In this modern mill, Ross units take care of all the major drying, exhausting, ventilating, and cooling requirements for the following seven operations. It is believed to be the largest installation of 'air handling' equipment for a single mill.

*Paper Machines	Ross-Hooper Closed Hoods
*Pulp Machines	Ross Dryers
Machine Room	Heating, Ventilating, Cooling
Stock Preparation Room	Heating, Ventilating, Cooling
Grinder Room	Exhausting, Heating, Ventilating, Cooling
Brown Stock Washing	Vapor Exhaust System
Bleach Plant	Vapor Exhaust System
(Plus Ross Midwest Fulton Drainage and Steam Control Systems)	

All of these applications involve the handling of large volumes of air and in some cases preheating it. The two operations marked with the asterisk are definitely in the 'Engineered Atmosphere for Better Processing' class. An atmosphere must be created within the hood that will absorb the water evaporated from the sheet as it passes over the drying rolls and carry it off as quickly and as thoroughly as possible.

Two 'volume' problems confront the engineer designing such pulp and paper drying systems. He must deal with large quantities of evaporated moisture. He must handle tremendous volumes of air. He has to determine how much air is required to pick up and hold the evaporated water... when and to what extent the air must be preheated... how to introduce and circulate the air in order to reach every remote pocket in and around the dryer rolls... how to draw-off and exhaust this moisture-laden air. In a sense, the machine creates the moist atmosphere. It's the experienced engineer's skill in designing 'atmospheres' that knows how to handle these related problems properly.

Bowater's Southern Paper Mill stands out as a modern mill in every respect... and an excellent example of the broad-scale service Ross Engineers can give and are giving the pulp and paper industry. Much of it has to do with Engineered Atmospheres.

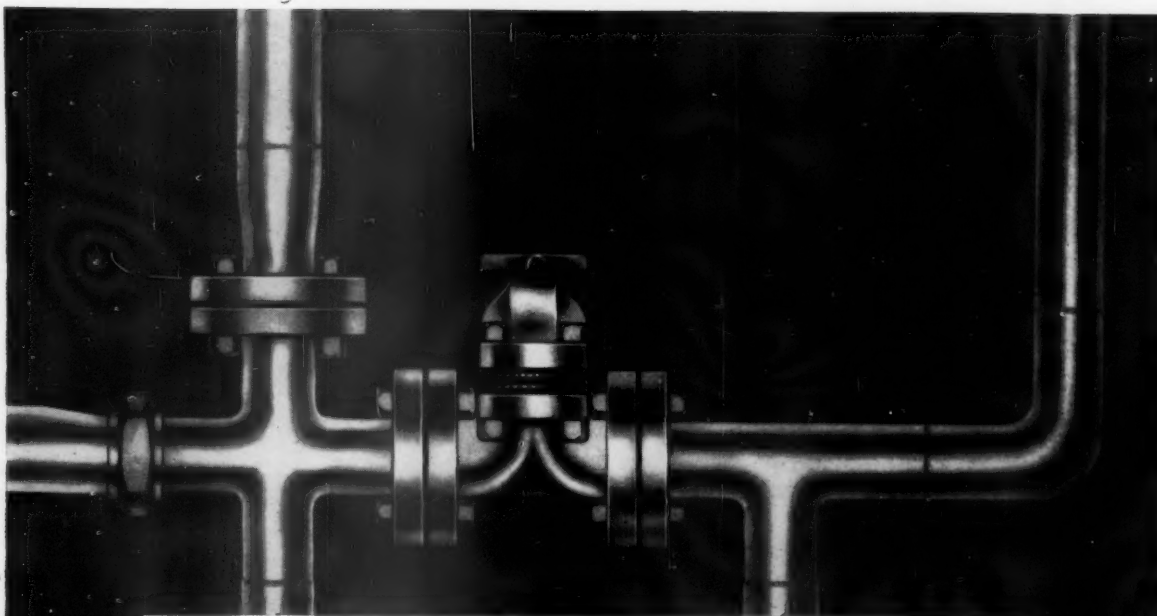
In the field of paper and board conversion, such as coating, laminating, waxing, embossing, etc., Ross Engineers work closely on the drying and other conditioning phases with its affiliated company, John Waldron Corporation, New Brunswick, N. J. This company specializes in Web Processing, taking care of the converting and mechanical operations.

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- Multiple choice of joint with *every* fitting—*on the job!*
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- Use of *low cost*, light wall Schedules 5 and 10 stainless pipe!

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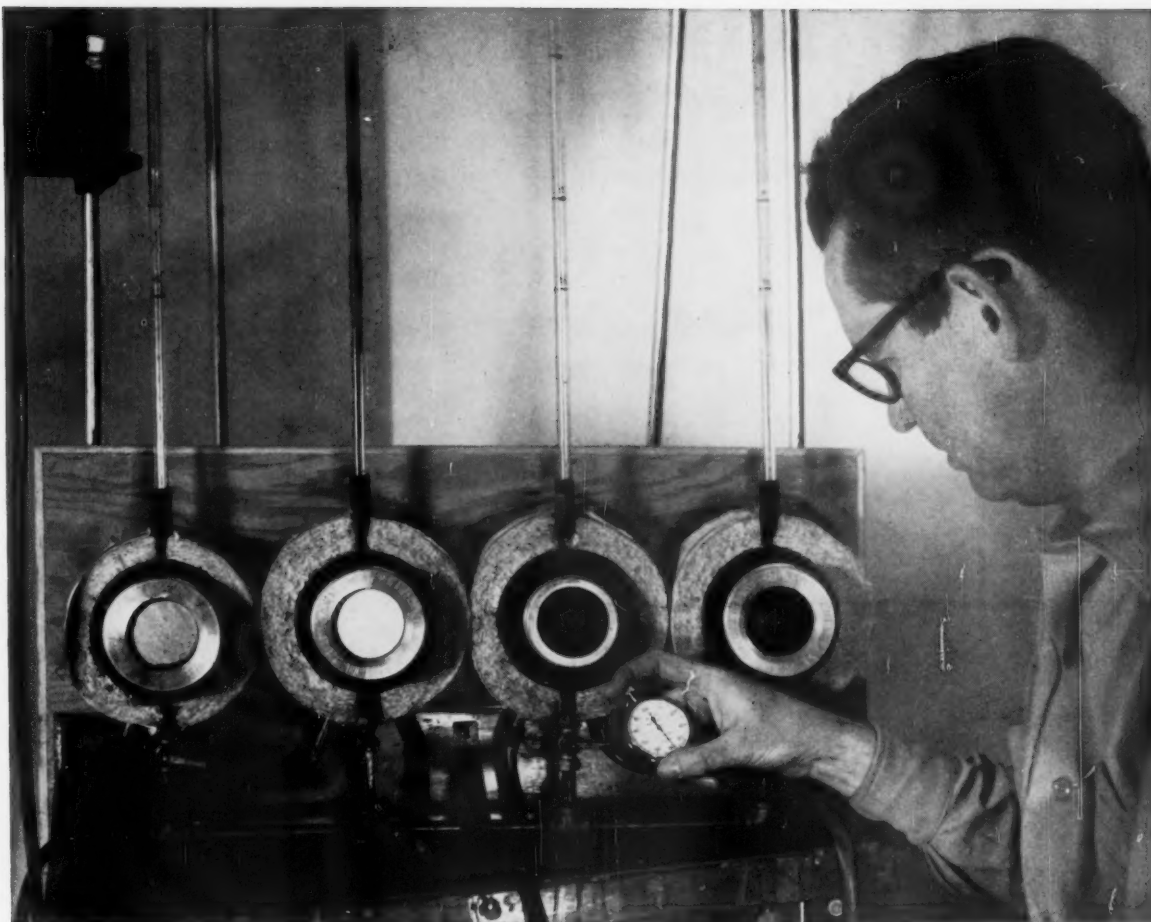
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**FOOD CONTAINER BOARD** (at left) sized with 3% rosin compared on a penescope with food board sized with 2% Mersize. Note visible proof of the high sizing efficiency and greater water-resistance gained with Mersize.

## Having trouble meeting penescope tests? Use Mersize

"Now we have no trouble meeting our penescope specifications." That's what Monsanto technical service men hear from food container board mills using Mersize.

From the day you begin using Mersize, you'll see the money-saving difference. You'll meet penescope specifications on the first try more often. You'll

save time, extra work, and get more consistent, high-quality production.

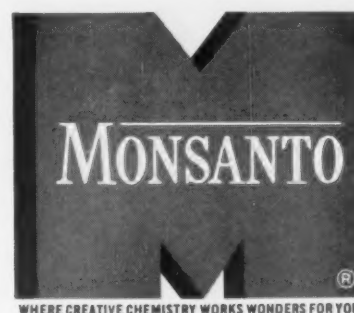
Mersize is *chemically* tailored to give you dependable, uniform sizing. With Mersize you can rely on greater resistance to liquids with less size . . . and results will be more uniform day after day. A mill trial will prove it to you.

**MERSIZE** gives you 20% to 30% lower sizing costs

Better sizing with less size solids  
Low air stabilization factor  
High resistance to feathering  
More uniform sizing of hard-to-size pulps  
*MERSIZE: Reg. U. S. Pat. Off.*

**Out of every 10 mills that have given Mersize a thorough mill trial, 9 have become steady users.**

Organic Chemicals Division  
MONSANTO CHEMICAL COMPANY  
Dept. PC-76, St. Louis 1, Missouri





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# MACHINE OPERATION

## with Masoneilan Drainage Systems

**Engineered control of steam and blow-through  
are keys to improved quality and extra savings!**

Mason-Neilan offers special Paper Machine Drying and Drainage Systems to provide maximum efficiency in the drying operation. They are designed to achieve accurate control of steam pressure to the driers and continuous evacuation of condensate, air and non-condensables from all driers, through means of closely controlled differential pressures.

### New Bulletin Highlights Advantages

Although every system is individually engineered, Mason-Neilan has prepared a basic review of the paper machine controls that comprise these drying and drainage systems. It points out eight important advantages which a properly designed system can achieve:

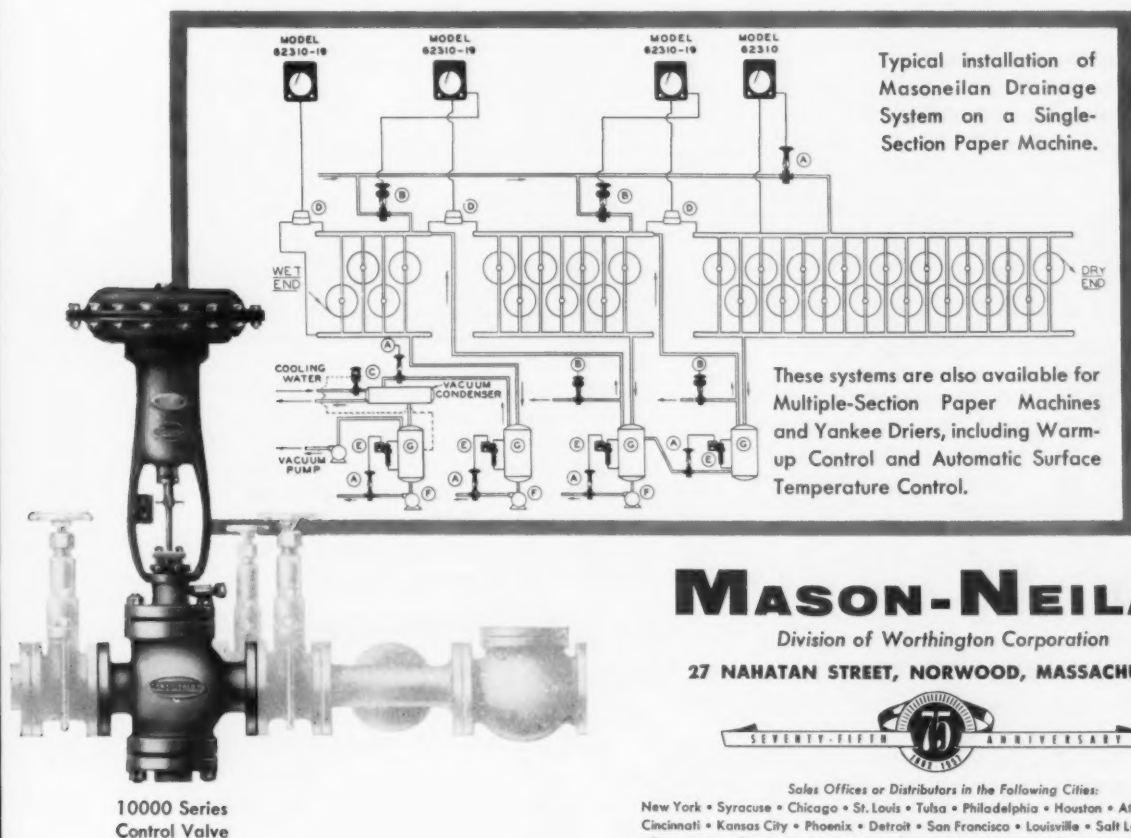
- Improved quality
- Reduced maintenance
- Steam economy
- Increased production
- Uniformly dried sheet
- Improved heat transfer
- Reduced power requirements
- Longer felt life

### Undivided Responsibility

Complete, experienced engineering and all required equipment for these systems are available from one source, with undivided responsibility — Mason-Neilan.

### Send for Bulletin P.D. 113

Contact the Mason-Neilan representative nearest you or write direct for your copy. Then let us discuss your specific application with you.



## MASON-NEILAN

Division of Worthington Corporation

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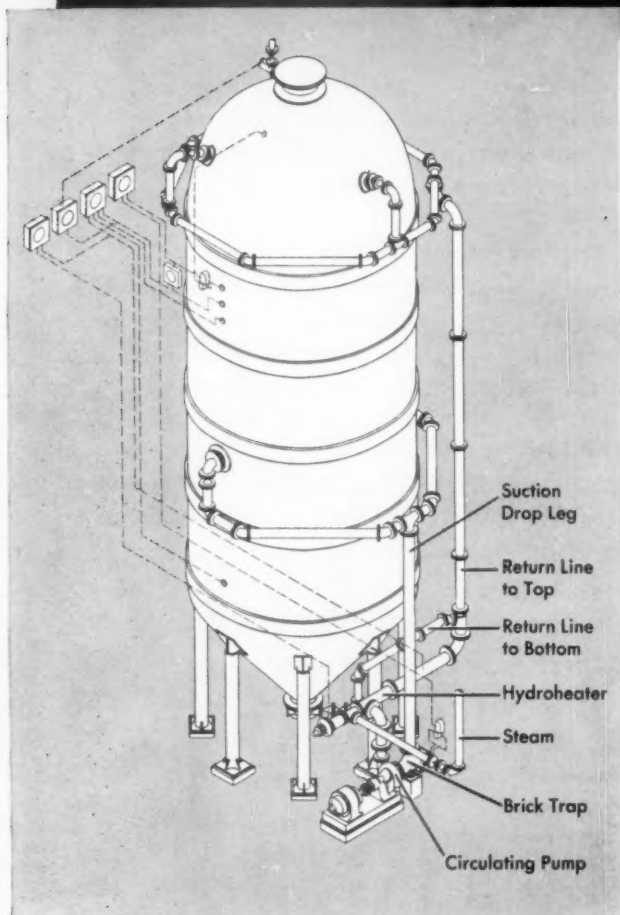


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10000 Series  
Control Valve

# Why You'll Get a *Greater Yield* of Higher-Quality, More-Uniform Pulp



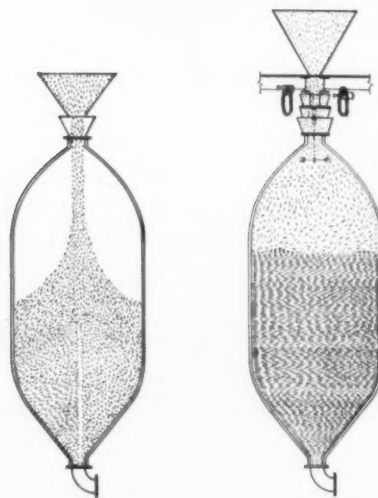
## The Chemipulp-KC Circulating System

The drawing shows how the hot liquor enters the digester at both top and bottom and leaves at several points at the center. This, combined with uniform chip distribution, results in uniform cooking temperature throughout the digester.

Consequently, you don't have to overcook to take care of cool spots in the digester. Very little of the hemicelluloses are dissolved and lost. The cooking time is shortened. You get stronger, uniform pulp.

In actual operation, this system has increased the Mullen from 112 to 150 and the fold from 800 to 4,500 in addition to increasing plant capacity up to 45%. Write for complete information.

## with the Chemipulp-KC Circulating System and Chip Distributor



Ordinary filling methods, illustrated above at left, result in a conical chip pile with chips positioned so as to concentrate the flow of liquor along the central axis of the pile. As shown at the right, metering plate and distributing bats of the Chemipulp-KC Chip Distributor deliver the chips uniformly over the area of the digester. The chips lie in a horizontal plane which permits the Chemipulp-KC Circulating System to bring the entire contents of the digester to uniform temperature. This Distributor can increase the chip charge from 25% to 50% with uniform liquor circulation throughout the entire mass.

## Chemipulp Process Inc.

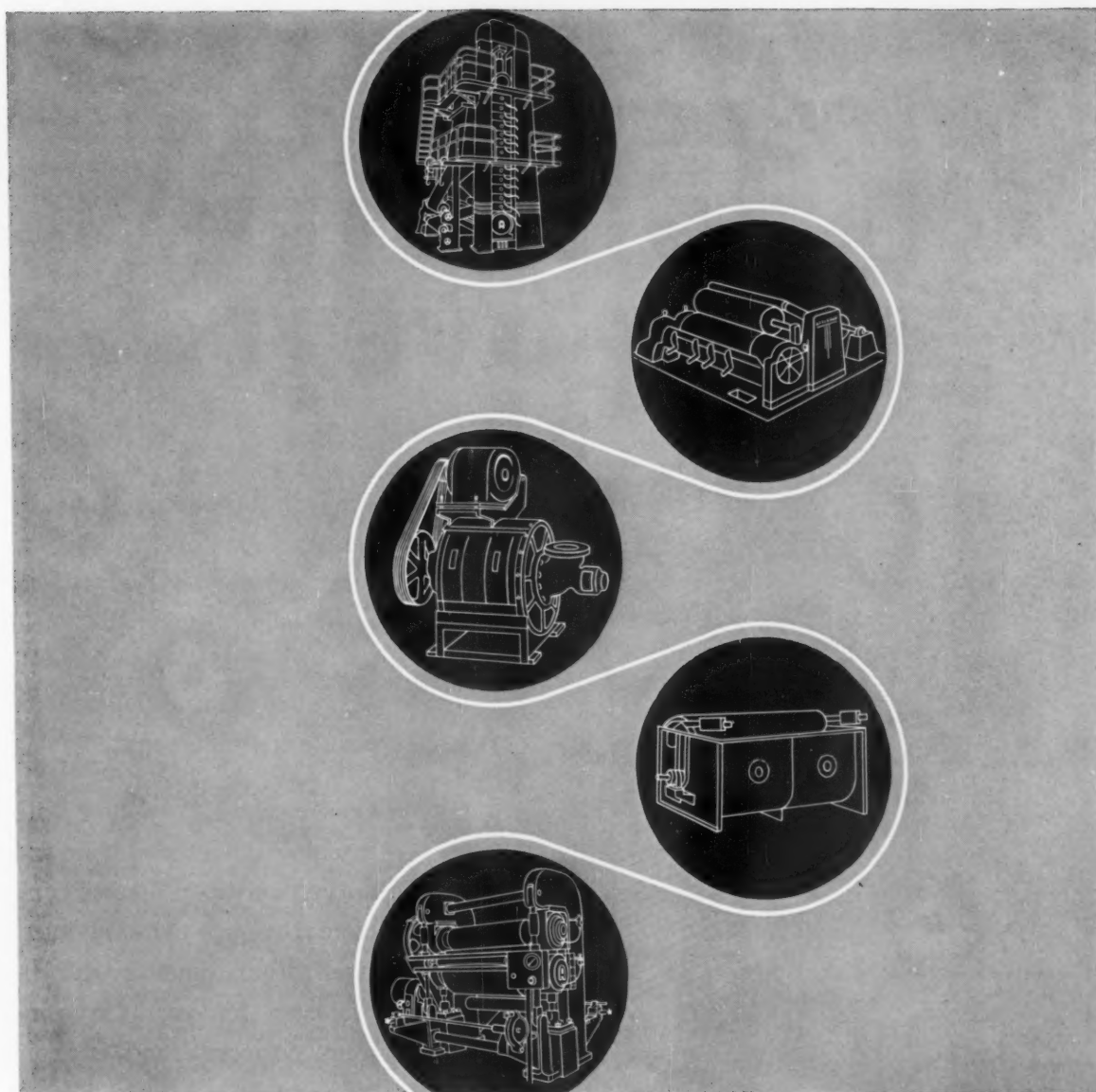
Woolworth Building, Watertown, N. Y.

Associated with Chemipulp Process Ltd.  
253 Ontario St., Kingston, Ont.

West Coast

A. H. Lundberg, Orpheum Bldg., Seattle  
Lundberg-Ahlen Equipment Ltd., 146 E. Broadway, Vancouver





knowing and filling the needs  
of the paper industry

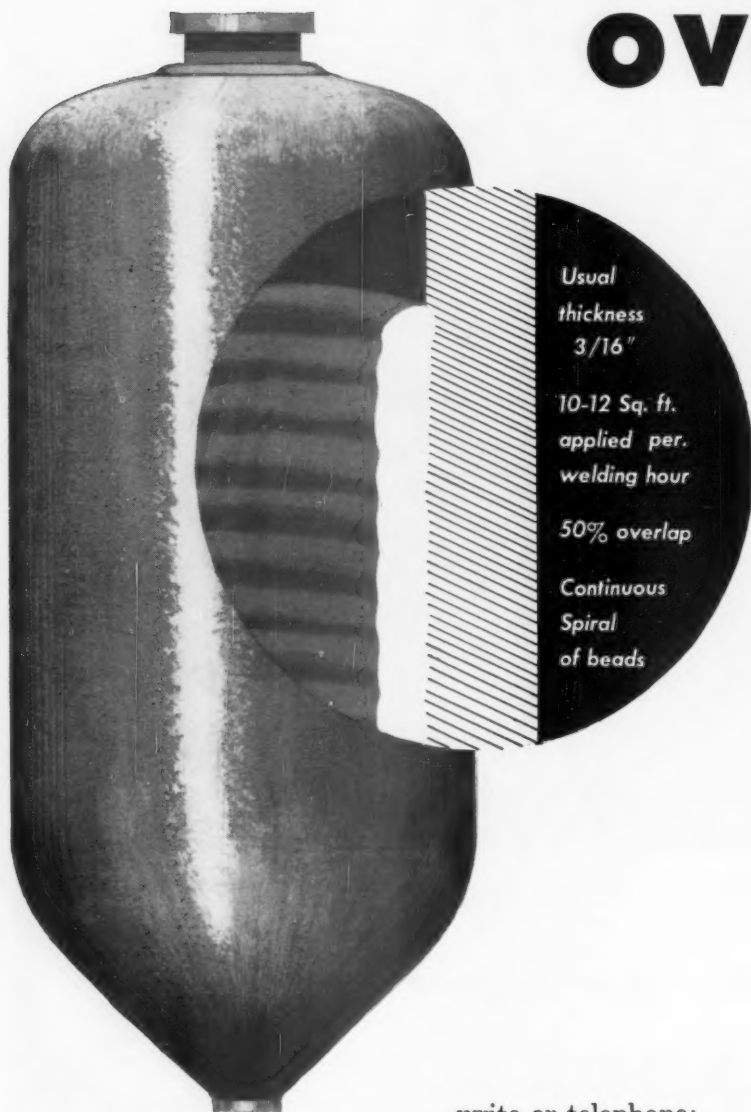
## APPLETON MACHINE COMPANY

Appleton, Wisconsin

Supercalenders, winders, rotary screens and gravity deckers, textile  
calenders, machine calenders, calender rolls, Cram Dryer Drainage System.



# **Why pay more for DIGESTER OVERLAY?**



The Alloy Cladding automatic stainless steel overlay process, using submerged arc welding, assures highest quality weld deposit and top welding speeds at prices substantially lower than other methods.

Continuous 360° welding with machine controlled overlap and no vertical tie-in assures complete coverage with stainless steel. Your digester will be protected for years to come from corrosion and erosion.

Let Alloy Cladding tell you why they can offer the highest quality at the lowest cost.

write or telephone:

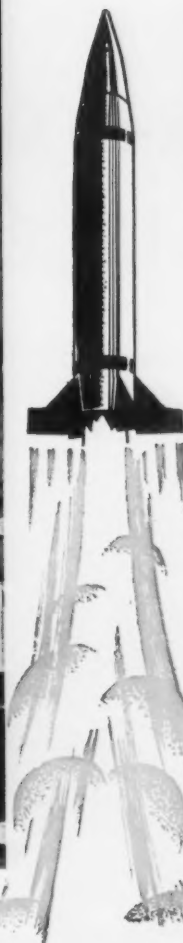
## **ALLOY CLADDING COMPANY, INC.**

*Automatic Welding Engineers*

2800 Falls Road, Baltimore 11, Md., Telephone: VERNON 7-4867

# SULPHUR

helps to create  
HEADLINE products



"Thiokol" synthetic rubber, is an organic polysulfide elastomer. One of its many uses is in solid propellents for long range and high altitude missiles. In liquid form, "Thiokol" synthetic rubber mixed with an oxidizer, is poured into specially designed combustion chambers of rockets. It helps to give stability to the fuel charge and resistance to shock. It promotes uniform burning. When the rocket motor is ignited the mixture burns with great intensity and generates large volumes of gas to propel the rocket.

Solid propellents made with "Thiokol" synthetic rubber have

proved their value in rockets over liquid propellents in many ways: they are less costly and easier to manufacture—simple and rugged construction makes handling and launching easier and safer—fuel tanks and complicated feed systems are eliminated.

"Thiokol" synthetic rubber is a product containing a high percentage of Sulphur—its name being derived from the Greek words for sulphur and glue. Here is another example of the continually broadening field in which Sulphur is an important and necessary element.

*\*A trade name of Thiokol Chemical Corporation.*



## Texas Gulf Sulphur Co.

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Sulphur Producing Units

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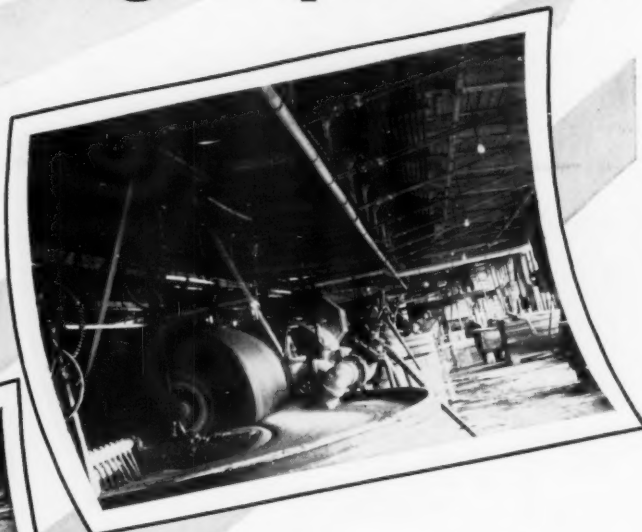




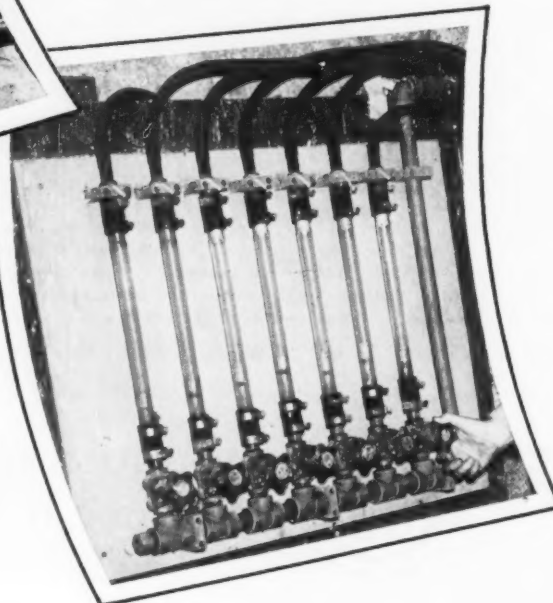
USCOLITE PLASTIC PIPE

## In the Kalamazoo River Valley — Leading Paper Mills

**"Uscolite Pipe is much easier to install,"** says the chief pipefitter of a large paper mill in the Kalamazoo Valley. And so far, its upkeep cost is nil because even after a year's service there's been no corrosion from chlorine bleach. Metal pipe lasted hardly six months. Adds the chief pipefitter, "We recommend Uscolite pipe to anyone with similar installations." Photo at right shows some of the 1500 feet of Uscolite used in the chlorine bleach lines of this mill.

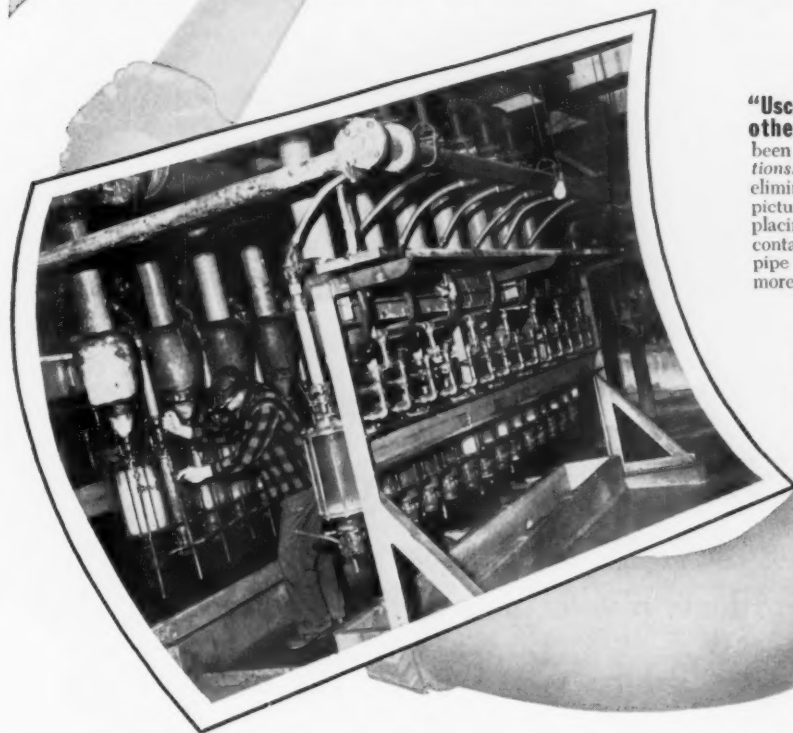


**"Uscolite shows no deterioration after 3 years,"** says executive of another large paper mill in the Kalamazoo Valley. The picture below shows Flow-rator panel of Uscolite pipe which regulates flow of chlorine to paper vats to provide bacterial control. The Uscolite pipes are immune to corrosion, contamination, sweating, and are cleaner than the metal pipes formerly used.



**"No maintenance problems with Uscolite Pipe,"** says an official of the Allied Paper Corporation's mill in the Kalamazoo Valley. "We use Uscolite in our sediment removal system, chlorine bleach lines and glue system." Previous pipes usually lasted only several months, but Uscolite pipe has been on the job for 2 years so far and shows no sign of corrosion yet. Photo above shows Uscolite pipe fittings and valve of Sween glue machine.

# choose Uscolite because



**"Uscolite costs far less to install than any other pipe,"** says a big mill, "and there has been no failure in any of our Uscolite installations. That means all our repair time has been eliminated." Centrifugal separator barrels (in left picture) are made of Uscolite 6-inch pipe, replacing brass pipe which eroded badly from dirt contained in the swirling water. Stainless steel pipe was rejected because it cost nearly 6 times more per foot than Uscolite pipe!

## Which USCOLITE pipe best serves your needs?

**Uscolite CP:** styrene-acrylonitrile-butadiene copolymer; good resistance to strong acids, active chemicals; higher impact strength and operating temperatures.

**Uscolite RV:** an unplasticized, unmodified polyvinyl chloride (PVC); higher resistance to strong oxidizing acids and chemicals; good impact strength.

First used in the Kalamazoo Valley three years ago, Uscolite® plastic pipe has been so successful in carrying chemical solutions, *without being harmed by corrosion and erosion*, that more than a dozen paper mills in the Valley now use Uscolite pipe and replace metal pipe with Uscolite as soon as the metal pipe wears out. Uscolite pipe and fittings—including elbows, tees, flanges, couplings, valves—are obtainable at any of our 28 District Sales Offices each staffed with factory-trained engineers, at selected "U.S." distributors, or write us at Rockefeller Center, New York 20, N. Y. In Canada, Dominion Rubber Co., Ltd.



Mechanical Goods Division

# United States Rubber

**Mechanizing the Small Producer . . .**

This is step II. Step I was the chain saw. Now, from the South, modified and improved, . . .

## Pallets Help Northeast Producers

West Virginia P & P's loggers break through a serious barrier to production with idea borrowed from the South

● The pallet idea in the Northeast woods has carried West Virginia Pulp and Paper Co.'s producers over a serious obstacle . . . outmoded methods that caused reluctance of timberland owners to produce pulpwood. (These owners, mostly farmers, hold more than one-third of all commercial forest land in the Northeast.)

The reluctance of these small, unmechanized producers is understandable because of the hard labor involved in pulpwood production. This is especially true in the Northeast where the terrain is often rough, the weather subject to extreme variations, with the back roads officially closed in the spring months, and the pulpwood (hardwood for the most part), large and heavy.

Now the pulpwood pallet, long-time Southern favorite, has been modified, improved and adapted for Northern operations.

**"Operation Pallet" . . .**

The story begins with Stan Hamilton, manager, wood dept., West Virginia's Mechanicville, N.Y., mill. He

is a 1926 forestry graduate (with a master's degree) from Yale U. Later he worked with the New York State Conservation Dept., Lowville, N.Y., then went South to Tennessee with the TVA. He joined West Virginia in 1943, worked one year in the Covington, Va., field, then moved to Mechanicville, where he eventually became manager of the wood department at that mill.

His efforts in "Operation Pallet" have been joined to those of six pulpwood dealers who channel more than 110,000 cords of Northern hardwoods from some 1,000 independent producers to Mechanicville each year.

Manager Hamilton and the selected six flew to West Virginia's Charleston, S.C., mill in April, 1956. Their purpose was to look over some typical Southern operations, see if they could pick up some good ideas.

The pulpwood pallet made an immediate hit with the men, recalls Mr. Hamilton. "It's significance will be revealed in a short time, but I personally believe that the pallet will exert a tremendous impact upon the

production of pulpwood in this region. We think we are in business with the wooden pallet. It will make pulpwood production more appealing to the small producer. There's a tremendous saving in time and labor.

"Price for wood is not enough of an incentive. You have to do this sort of thing, offer new ideas, added services such as the pallet to encourage greater production."

**Changes were Necessary in North . . .**

The pallet system works fine in the South. But to successfully adapt it for Northern operations, the usual practice of loading the pallet lengthwise was impractical due to longer hauls in the North, sometimes up to 100 miles. To get a good payload, it is necessary to have between four and six cords.

West Virginia decided to turn the pallet around sideways, fit three or four pallets in the space of two. Problem No. 1 was solved.

Problem No. 2 involved the substitution of a lighter material for the



heavy metal pallets. Wood was selected; being lighter, it could be handled with greater ease by two men; by one if necessary. Wooden pallets, it was found, were just as durable, had a big advantage in cost. A plus factor: they could easily be made by the farmer himself at the rate of one or two a day.

A good indication of the success of the pallet system is the many innovations which the farmers themselves make. For instance, Austin W. Barrows, a trucker-producer at Brandon, Vt., has improved his equipment by installing the winch power controls on the outside of his cab. Greater efficiency and ease of operation are two advantages of this change, he says.

Originally, it was thought that a 12,000 lb. winch was necessary for hauling the pallets up the ramp to the truck body. However, some farmers have found that 10,000 lb. is adequate, and that in most cases even 7,000 lb. is sufficient.

Here's the cost breakdown:

Bolts, nuts and washers	\$ 5.30
U-bolts—strap iron	10.40
Lumber—60-ft.	6.00
Total approximate cost (excluding labor)	\$21.70

The right answers, under Yankee prodding, were beginning to appear. There was still one major problem: the use of pallets on stump-to-truck operations where the land was too uneven for the truck to back up to the stump.

#### A Way to Solve Problem . . .

A Hoosick Falls, N.Y., sawmill operator, Harold Peckham, believes he has the answer: A logging arch to pick up the loaded pallet, which can then be hauled by tractor.

## Why They Like Pallets

**Loggers and farmers**—because they take the backbreak out of pulpwood production. Hardwood logs weigh 150 lbs. to 250 lbs.

**Truckers**—because they make an easier-handling load; provide better production capacity for truck investment as turn-around time is minimized. Also because with the logs "packaged" neatly on the truck, truckers are not bothered by State Troopers.

**Pulpwood managers**—because they bring mechanization to the little man, provide an incentive to produce more wood, picked up easier by trucks, resulting in fresher wood at the mill.

**Yard superintendents**—because pallet-equipped trucks are easier to unload in the mill, minimize waiting-time for unloading, keep producers happy.

**Management**—because they provide incentive for farmer wood, which is cheaper than company-produced wood.

"What we are urging is mechanization for the small producer," said Mr. Hamilton. "The average truck capacity without pallets is around 3.5 cords, or about 20,000 lbs. That means when a farmer loads and unloads this wood, he is actually handling 40,000 lbs. Normally, he is doing very well if he can haul two loads in a day to the mill.

"With the pallet-loaded truck, producers are now hauling as much as five loads a day, if the distance is not too great.

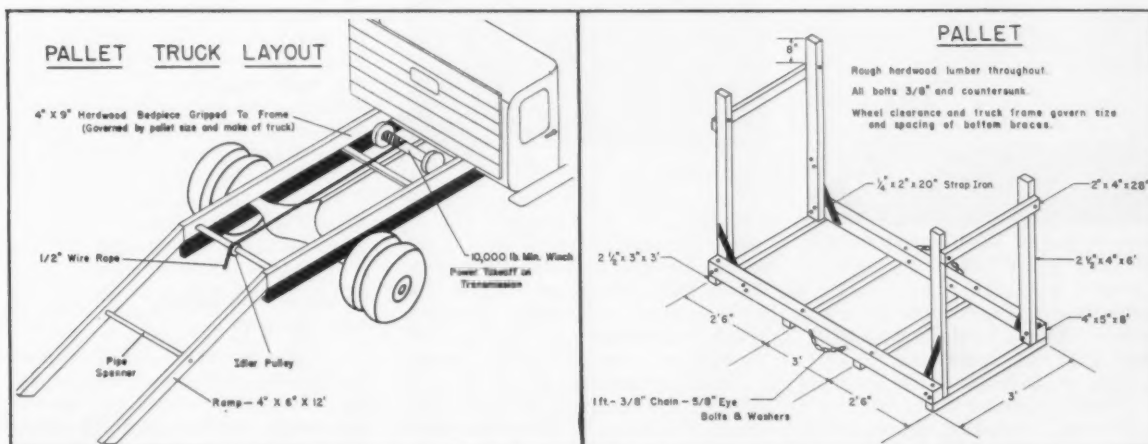
"Another helpful innovation is crane unloading, which we began on Jan. 1. We now have one crane, working 16 hours a day on truck unloading. About 50% of the trucks arriving at the mill take advantage of this system and we expect it will go to 80% as word gets around. Especially when a farmer, who is unloading by hand, sees others come and go in 15 minutes when he is working hard to get his load off in an hour.

"In this way, with pallets and crane unloading, the whole business of pulpwood production is more appealing to the producer, because of the speedup in movement of pulpwood equipment in and out of the yard, and the reduction in manual labor.

#### West Virginia's Operation—What Is It? . . .

"In Oct. 1955 our mill went 100% to hardwood pulping. West Virginia owns no land in this area for harvesting; instead we depend 100% upon local commercial wood. Our procurement field includes an area within a 100-mile radius of the mill; it extends south to the Catskills, east through Vermont to New Hampshire, north to the Adirondacks and west into the Mohawk Valley to the Utica area.

"There is an abundance of hardwood in this radius. We receive most of our wood by truck because of the favorable distance. With this change we have become an important factor



#### How You Can Make and Use The Wooden Pallet

Easy-to-follow instructions on these drawings help farmers make their own wooden pallets. Lighter wooden pallets are easier to handle, and durable.

**30 Minutes to Load . . .**

**15 Minutes to Unload . . .**



Time: 8:00 a.m. No manual labor here as pallet is winched aboard truck.



Time: 8:30 a.m. Fully loaded (about 5 cords), truck heads for mill.



Time: 9:00 a.m. Truck checks in for scaling at Mechanicville woodyard.



Time: 9:05 a.m. Slings are wrapped around first pallet load.



Time: 9:08 a.m. Crane swings second load aloft.



Time: 9:12 a.m. Third load (about 1.5 cords) is lifted to storage pile.



Time: 9:15 a.m. Empty truck (15 mins. elapsed time) passes one being unloaded by hand (estimated hand-unloading time: 1 hour).

in the forest economy within our procurement region. In contrast to other years with its larger procurement domain, we have become a big frog in a little puddle, so to speak.

"We are, moreover, in an area which is heavily industrialized and there is much competition for labor from industries.

"My job, as pulpwood manager, is

to log this mill successfully. The success of the job depends upon the understanding and efforts of many people who respect the mutual advantages in a local market for wood.

"What we are working hard at is what I like to call our Neighborhood Forestry Program. Pulpwood production becomes a vital part of such a program. We want to encourage woodlot owners to perpetuate the woodlots, and to improve the quantity and

quality of timber for sale. Our objective is to strive to obtain general acceptance of the idea that timber is a renewable resource. It need not be harvested on a cut-out-get-out basis. In other words, through proper management woodlot owners can 'eat their cake and have it, too.'

"This program also includes extension forestry and the promotion of integrated logging."

To get the pulpwood pallet idea across to the farmers presented a challenge. Then came a "brainstorm"—why not demonstrate the pallet on WRGB, a local television station. "Sure," said the station manager, "we'd be happy to cooperate."

## Deluged with Letters from Farmers . . .

Cooperating with Floyd Carlson of the College of Forestry at Syracuse, Mr. Hamilton assembled toy-size models of a truck, crane and a pallet. Small branches, properly cut, became pulpwood. Then, on Feb. 5, 1957 the demonstration was made. Fifty letters arrived at the station on the first mail

delivery, requesting information.

The next few weeks were busy ones for Mr. Hamilton. Letters and phone calls (about 150 to date) poured in. In reply, West Virginia sent out a brochure with photographs, cost data, and information on how to make the wooden pallets.

"One of the most surprising things that happened," recounts Mr. Hamilton, is that within a few days, two pulpwood producers arrived at the mill with pulpwood pallets. Both of these fellows, one from Vermont (who had never hauled pulpwood before) and one from the Catskills, made the pallets themselves after they had seen the telecast and discussed the project with company representatives.

#### What An Operator Says . . .

Fred "Stretch" Schmigel is another independent wood trucker who likes pallets. "Within a couple of years, you'll see these pallets all over," he told PULP & PAPER.

"Why do I go for these pallets? Well, I haul about 90 cords a week average to Mechanicville. It takes us about an hour and a half to hand load this doggone hardwood. In the mill yard you have to spend another 45 minutes if you're unloading by hand. With pallets, we can load the truck in 20 minutes, and in and out of the woodyard time is about 15 minutes. Another thing, the pallet makes a much neater load and you aren't troubled with inspections and pos-

sibly penalties by the State Troopers. It also gives you a better chance to regulate your day. A fellow will be more apt to cut more wood figuring that the truck will come quicker for it. You see what we are doing is placing several of these pallets around at different places. When the fellow has the pallets loaded, he gives us a call and we come and pick them up.

"This is my sixth year hauling pulpwood to West Virginia. I like these pallets so much that I have a truck being delivered any day now which can hold four pallets. This will be my second pallet truck.

Mr. Schmigel was the first producer to switch to pallets. Several others have followed his lead, each with new innovations.

## Tree Length Logging . . .



At little extra cost, you get pulpwood out with sawtimber—about  $\frac{1}{2}$  cord of pulpwood for every thousand feet of timber. This is how. . . .

A West Virginia producer, Henry Cramer, was visited by a PULP & PAPER editor. Mr. Cramer is an independent wood producer operating in the Catskills in Greene County. His logging equipment consists of a Caterpillar D-2 and D-6 tractor with a Hyster logging arch and Trojan one yard wheel type loader.

This 31-year-old logger is not afraid to use new equipment, new ideas. Perhaps that explains why he's successful now in doing a good business in logs and pulpwood.

West Virginia's district forester, George Quaile, didn't have to talk long about the merits of integrated logging before young Cramer began to see the light. During P&P's visit, Mr. Cramer was skidding some trees through about 18-in. of mud.

"The main thing I like about integrated logging is when you log tree

lengths you can do it at very little extra cost and it is a much cheaper way of getting the pulpwood out," said Mr. Cramer. "Pulpwood operators like to cut sawlogs too. Pulpwood operator's don't like to follow the sawmill boys. So, as George Quaile here told me, 'why not have both done at the same time.'

"The advantages of integrated logging? Well, for one thing, your landowner likes it because there isn't as much slash. Better utilization means more money for the owner, too.

"Another important point is that you are converting your No. 3 grade logs into pulpwood. Makes the sawmill men happier. Before this, if I had a log and knew it was No. 3 grade, I wouldn't even bother to cut it. I produce about 1,500 bd. ft. a day plus some pulp. I figure that for every thousand feet of lumber I get about

a half cord of pulpwood. That means \$5.50 extra at the roadside."

Henry Cramer was one of the pallet pioneers, likes the system, and has come up with some improvements of his own. He redesigned the bed on his truck for more even winching of the pallet, substituted 3-in. diameter pipe instead of pulleys for the cable, and uses a platform over the truck frame to enable him to haul logs or other commodities when necessary.

"The most amazing thing happened the other day," recalled Mr. Cramer. "We were winching a pallet load of wood onto the truck when the cable snapped as it was halfway up the ramp. Oh! Oh! I said, here goes everything. Instead, nothing happened and the pallet didn't even tip back. In fact, we had to pull rather hard with the tractor to tip one of these pallets backwards on the ramp."





**Not Only a Big Project . . .**

**. . . is getting wood for Hinton mill, but it is going to be different . . .**

**Forest is Much as It was 400 Years Ago . . .**

## **Time Rolls Back for St. Regis . . .**

• Management and operation of the vast forest lands, on the high eastern slopes of the Rockies, presents an exciting challenge to North Western Pulp & Power Ltd., and its St. Regis-trained operating team.

It was W. R. Adams, president of North Western Pulp and also of St. Regis, who declared: "Nowhere else in the world that I am aware of, and certainly nowhere else in the Western Hemisphere, has a government placed so much trust and responsibility on a privately-owned corporation."

The trust is to so manage and operate a vast portion of Alberta Crown lands so it has the same volume of timber products in 25 years or 100 years hence. Premier Manning of Alberta is on record as declaring his government is to stimulate private in-

- ✓ **6,000 sq. mi. of woodlands set aside for Hinton mill**
- ✓ **Called "greatest trust" ever placed in private corporation**
- ✓ **Tree species and novel conditions call for new methods**
- ✓ **Facts and figures on Alberta's and company's timberlands**
- ✓ **Four working circles are set up; cutting cycles established**
- ✓ **Ambitious forest inventory is under way on 2,000,000 acres**

vestment and enterprise and give it full confidence. This has cheered the builders of the new Hinton, Alta., mill.

#### Size of Lease-Hold . . .

It is contemplated the mill may be doubled in size (now can make 500 tons a day of market pulp) in future years, yet only growth will be cut on the 6,000 sq. mi. in reserve. The company has access to 3,840,000 acres which are rolling hills, reminiscent of New Hampshire. The present lease with Alberta is for 3,000 sq. mi. and is renewable. In 14 years, decision can be made to lease an additional contiguous 3,000 sq. mi.

#### Size of Alberta's Timber Resources . . .

In Canada, the national government turned back forest lands to the provinces in 1930. Alberta Crown lands which are reserved for forest exploitation only comprise 142,000 sq. mi. Back in 1930 there had been no protective organization or services for these lands. It wasn't till 1948 that inventories were started. Now 43% is classified as productive forests, 28% is potentially productive (burns and cut-over lands), and the rest is non-productive—swamps, barren or alpine.

Merchantable timber is estimated at 500 million cunits, 25.3% white spruce, 3.3% black spruce, 2.1% balsam, 22.3% jackpine and lodgepole pine, and 47% aspen and other deciduous trees.

#### Character of Company Forests . . .

North Western's lands are on eastern slopes protected from strong west winds, at altitudes of 3,000 to 5,000 ft. The trees grow tall and straight, there is little underbrush. The mountain rivers are too fast for driving. The forests are dense and dry, as there is little rainfall.

A strange history here—for generations only fires usually have been able to force open the tight pine cones for regeneration. St. Regis foresters hope this slow and costly process can be replaced by lopping off low branches so ground heat can open cones. At any rate, it is setting up an extensive system for fire protection. Scarification is being tried to speed regrowth.

Spruce reaches maturity in 110 years; pines in 90 years. About 300,000 cords a year will be cut. Yields will be 20 to 40 cords per acre in many areas. Cutting takes place year around, as there is little snow. In summer muskeg country roads must be covered with crushed gravel or stone. Most stands will be easy of access, but North Western is starting at scratch to build needed roads.

#### Prices and Costs . . .

Fixed prices for 21 years under contract: 55 cents a cord for lodgepole pine (50% of total cut); \$1.50 a cord for spruce (comprising about 25%) and average stumpage price will be about 85 cents. Stands per acre are less than on the West Coast, thus road and logging costs in relation to output will be higher.

By the time all roads are built and logging equipment acquired, North Western will have invested about \$30 per acre on the entire timber lease area. Also there will be a permanent annual expenditure of about \$3.50 per acre. About 10%—more than \$2 per cord of wood used, or about 35 cents per acre per year—will go into "pure" forestry—not for wood production, or roads or handling, but for silviculture and technical services to protect and develop the stands.

#### Who are Producers? . . .

Most production will be by independent contractors, equipped and



#### Resident Manager of Woodlands

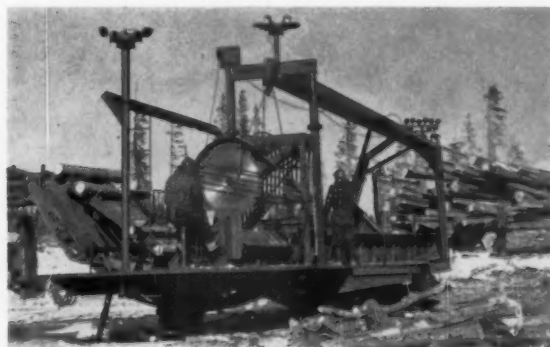
. . . at Hinton is ADRIAN PROVENCHER, a product of St. Regis' subsidiary Rhinelander division. He headed Rhinelander's Ontario woodlands, lately as v.p. in charge of operations for Ripco Timber Co., its Ontario logging organization.



#### Tal Padre . . . Tal Hijo . . .

Like father, like son. H. B. (PETE) HART heads up all Northern woodlands of St. Regis Paper Co., from his Deforet, N. Y., headquarters and has now taken over top responsibility of the Alberta woodlands. Assistant woodlands manager at Hinton is his son, STAN HART.

outfitted by North Western. Interesting innovation in this Alberta project is the rental of some mechanical logging equipment from a Florida firm, with which St. Regis has dealt for years in its southern U.S. operations.



#### Opportunity to Mechanize . . .

. . . in a manner that hasn't been possible anywhere else. Here a Nesco slasher operates experimentally in Hinton's Athabasca Working Circle. . . .



#### Opportunity for Management . . .

. . . because forests are much as they were 400 years ago, when white men first saw them. Note the residual patches on hillside for reseeding. . . .

**Most Wood Comes by Truck . . .**

Camps will operate two to four years at one site, producing 8,000 to 25,000 cords a year.

Wood from farmers and settlers within 100 miles of Hinton and also from sawmills and railroad tie-mills in the still virtually undeveloped

forests will be two other less sources of wood supply. Working closely with these contractors, under new conditions, St. Regis forest engineers expect to go into new mechanical developments wherever desirable or feasible. Nearly all wood is delivered

by truck; but some will come by rail.

High cable yarding of tree length logs will be tested. This is combined with slashing to 100 ft. lengths and automatic loading of trucks. The woodlands division is keeping accounts not only for itself but for a dozen contractors and their payrolls of 1200 cutters.

**Forestry and Management . . .**

The forestry department at Hinton is divided into three sections: inventory and management, photogrammetry and drafting, and cruising and cut layout.

The leased lands are divided into four working circles: Athabasca, Marlboro, McLeod and Embarras. In order, they lie northwest, northeast, south and southeast of the mill. Each is about 500,000 acres and will be treated as a separate independent sustained forest. Each is divided into compartments, as allowed by sustained cut, and each will require 20 years to cut over.

Normal cutting is strip cutting, block cutting and clear cutting with patch stands left for reseedling. Strips are 300 ft. wide and in direction of prevailing wind, if possible, to aid natural reseedling. Planting will be done, if and where needed. ●

**In Hinton's Big Forest Inventory . . .**

## There is Adventure and Science

System used in Florida operations of St. Regis has interesting angles when put to work in ambitious Alberta project

One of the most ambitious continuous forest inventory programs is being carried out by North Western Pulp & Paper Ltd. on its present 2,000,000-acre Crown lands leasehold.

Responsibility for the C.F.I. program is that of John Miller, a 30-year-old forester who came to North Western from St. Regis operations in Jacksonville, Fla., working under D. I. Crossley, chief forester.

The forestry department based its decision for the need for such a complete C.F.I. program on the following reasons:

1. To provide a close estimate of the pulpwood volumes in each of the four working circles in the pulpwood lease area.

2. To furnish mill management, by means of re-measurement of the permanently located plots, with detailed information on growth, stand structure and forest stand development.

3. To obtain data by which a workable management plan can be compiled for each of the working circles.

**How Staff is Organized . . .**

The company's C.F.I. field staff consists of the party chief, who is a graduate forester, and his three crews. Depending on the density of the timber to be worked, the size of the crews varies from two to three men with each crew chief either a graduate forester, or a graduate of a recognized Ranger school. The com-

passmen are youths selected for their interest in forestry. North Western's policy is to fill its seasonal compassman openings with forestry students, many of whom take the opportunity between terms to gain practical forestry experience while saving for next term's expenses.

Since field crews travel a considerable distance from the woodlands office, a schedule has been initiated which provides for eleven days in the bush and three days off. Crews get home every other Thursday and have the following Friday, Saturday and Sunday free.

North Western's pulpwood lease is interspersed with oil seismic roads which, added to occasional logging



roads, make it possible for the crews to drive by Land-Rover or Bombardier into or adjacent to most areas so far worked. The day will arrive, however, when the crews will have to locate their plots in remote areas accessible only by pack horses.

#### Winter Shelter is Problem . . .

Winter accommodations pose a difficult problem. The crews have camped in deserted lumber camps of every condition and kind, in forest ranger cabins, in trapper's shacks and in tents. Needless to say, the tents in winter are the least popular choice and whenever there is a move planned to another location, aerial photographs are thoroughly scanned for signs of previous human life, either in the form of a deserted cabin or camp.

The plots are set up so that there is a sample taken in each 640 acres, allowing for a minimum of travel and trouble. The one-fifth acre plots are established on a mechanical-grid basis and are grouped in clusters of four around a common section corner. The center of each plot is located five chains from the corner on a 45-degree bearing from a cardinal point.

#### Accuracy of Inventory . . .

The solo basis of the C.F.I. program rests in the plots being permanent so that they can be re-measured. Mr. Miller, on the basis of past experience with a similar program for St. Regis in Florida, worked out at the start various methods for the re-location of each plot five or ten years later.

On the basis of preliminary statistical analysis, Mr. Miller has estimated the expected accuracy to be within plus or minus 5% of the true pulpwood volume of each entire working circle of about one-half million acres. The larger an area is, of course, the smaller the percentage of error should be, and the accuracy expected from the intensity of sampling within a township (36 square miles) drops to within a plus or minus 20%. For areas smaller than a township, the error-percentage becomes so high that estimates are unreliable.

It has been determined that the average plot consists of 60 trees above 4.5 in. dbh. This means a lot of measuring and it is estimated that the time it will take the C.F.I. crews to sample one working circle is about nine months. It should take about three years to cover the entire base area.

#### How I.B.M. System is Used . . .

Important factor in North Western's C.F.I. program is the use of International Business Machines to compile field data. The crews fill in an I.B.M.

card for each tree and another for each plot while actually in the field. These "Mark Sense" cards are protected from moisture by storage in small polyethylene pouches.

The tree card is divided into the following classification: plot number, tree number, species, dbh, total height, quality, vigor, injury, mortality and error. Under each classification there are columns of numbers listed vertically from zero to nine. The field man then has only to draw a pencil line through the number he wishes to specify. For example, if he wanted to show plot number 627, he would draw a line through six in the first column under the classification "plot number," two in the second column, and seven in the third column.

The plot card is designed for use in the same manner, except of course that it has different classification headings. With this sample system, a field man is able to make a complete record of data with but a few strokes of his pencil.

#### Cards Sent to Winnipeg . . .

When the cards are completed in the field they are packaged and sent to the I.B.M. Service Bureau in Winnipeg for processing. North Western does not own I.B.M. accounting machines and these cards are processed on a contract basis.

An electric "sensing" machine in Winnipeg called the Mark Sensing Reproducer punches and sorts the cards according to data listed. I.B.M. then sends North Western a preliminary listing of field data for checking against errors and omissions which might have occurred in the field. These are corrected and returned to Winnipeg and I.B.M. punches new cards. Volume tables, prepared by North Western for the I.B.M. machines, are then punched into each tree card. Now the cards are ready for automatic sorting under any groupings such as desired, e.g. dbh, age class, species, etc.

Mechanical compilation of all this detailed information has eliminated much of the tedious work formerly associated with a continuous forest inventory. I.B.M. machines and the like can record and sort the wide range of information necessary to such a program in minutes where it would take an office worker days. ●

## Pulpwood personals

ADRIEN PROVENCHER was appointed mgr. of woodlands dept. for North Western Pulp & Power Ltd., Hinton,

Alberta, succeeding GORDON D. McNAB who resigned. He was formerly vice pres. i/c operations for Ripco Timber Co. Ltd., Hearst, Ont. . .

R. A. KRONENBERG, former acting mgr., was promoted to mgr. of Weyerhaeuser's Springfield, Ore. lumber division. . . PHILIP H. HOGAN advanced from woods supt. to logging mgr. of Weyerhaeuser Timber Co. to succeed JOHN A. WAHL who retired June 30. . .

THEODORE R. YOCUM is newly appointed chief forester for Simpson Timber Co.'s new central research department, Seattle. For the last five years, he has been chief forester for Ketchikan Pulp Co., Ketchikan, Alaska. Before going to Alaska, he was with Weyerhaeuser Timber Co. in Everett and Longview, Wash. . .

ROBERT A. CAMPBELL, of Southeastern Forest Experiment Station, Asheville, N. C., has been promoted to leader of Southern Appalachian Research Center, in charge of forest research at Bent Creek Experimental Forest and most of the federal research on hardwoods in the southern Appalachians. He takes the place of JAMES F. RENSHAW, who is moving from Asheville to a position with the Forest Service in Atlanta. . .



#### Power Saw Becomes Barking Machine

ELDON AUSTIN, contract logger at Molalla, Ore., with "Timber Plane" he developed for peeling poles and pulpwood. Unit consists of high-strength, light-alloy frame beneath which is mounted high-speed cutterhead, containing two 6-in. Ohio "OK" knives, powered by 5 hp Homelite chainsaw engine. Spiked free-running front wheels and spring-loaded tailskid "float" cutter unit. Operator varies depth of cut by slightly increasing or decreasing vertical pressure. Mr. Austin expects manufacture of Timber Plane kits to start shortly. They are to be available for direct-drive 3 to 6 hp chainsaw engines of "most all makes" and will be marketed through established power saw distribution channels.

**Timber-r-r! Special Blades Bowl Over Trees**

Two of Fleeman Enterprises' TD-24 crawler tractors hack off trees and shove them to ground, clearing standing trees not taken by saw or pulpwood dealers.

**Quite a "Bite" . . .**

Closeup of special Bucyrus Erie blade shows how it slices off the stump at ground level. Discs are later used to cover over stump remains, which take about three years to decay.

**Waste Lands Salvaged . . .**

**Pulpwood producers help fill need for productive lands.  
Owners of lands are taking note . . .**

Owners of farmland are beginning to take note of this industry's work in site preparation to fill the ever-increasing demand for productive farmlands. Latest example: Fleeman Enterprises of Lake Providence, La., which is converting woodland waste areas into fertile farm tracts.

Fleeman is clearing and plowing 3,500 to 4,000 acres a year into highly fruitful croplands near Lake Providence, along the Mississippi River. Trees taken in this project are sold to either pulpwood producers or lumber

mills.

Four International tractors—three TD-24's and a TD-18—are used in the work. Pulpwood and sawtimber are removed first by contract with the individual timber companies. TD-24's with modified or special Kislea blades are then used to slice off trees at ground level. Production averages about  $\frac{1}{2}$  acre per hour per tractor.

Using built-in racks on their angle blades, crawlers then windrow felled trees and brush into piles 100 yards apart and windrows are burned. After

debris is burned, blades are used to sweep area clean of limbs and other debris.

About two acres an hour is cleared in the final sweep. Discs are used to cover stumps with up to four inches of dirt. Wheat, rice and similar crops can be planted immediately and cultivated raw crops can be sowed in about three years—which is the estimated time it takes for stumps to decay.

Similar methods can be used by Fleeman to cultivate this bottom and swampland into pulpwood growing lands. The system used by this land preparing firm is similar to site preparation methods currently in use by many pulp and paper companies although all of them have their own modifications. ●

**Machine from Finland  
Tested for Moving Logs**

Tests are being made at Lake Couchiching, near Orillia, Ont., of a machine developed in Finland for pushing logs and pulpwood through still waters. In Eastern Canada and other parts of this continent where there is a winter ice problem it is expected that the device may be useful in breaking up ice.

The machine is described as little more than a venturi-shaped turbine driven by either an electric motor or a diesel engine, but it thrusts a stream of water powerful enough to clear a channel through 20 in. thick ice in a matter of days.

The current developed by the machine draws warmer water from the bottom of a lake or river to replace water on the surface, and the combination of warmer water and current is apparently sufficient to prevent the formation of ice or to disintegrate ice already there.

Known as the Arvo Flow Developer and made in Canada by Oraco, Ltd., Orillia, Ont., the machine is being distributed by Fenia, Ltd., in Montreal.

**New Methods in Spraying  
To Combat Spruce Budworm**

A 500,000-acre aerial spray project was carried out during July on U.S. Forest Service lands in Idaho to suppress spruce budworm, in epidemic stage for three years.

At times seven large airplanes, carrying up to 750 gal. per trip, were covering the forests systematically, one gallon per acre. The spray furnished by Stauffer Chemical is a light oil carrier containing 1-lb. of DDT per gal.



### Preparing "Super Trees" for Place in the Sun . . .

IP foresters JERRY BROCK, left, and HUGH HILL pollinate and tag a new seedling recently arrived at the Baldwin County, Ala., orchard from the University of Florida genetics lab.

## May Advance Genetics Study 5 Years

International Paper Co. has established the first commercial pine seed orchard in Alabama at Bay Minette, near Mobile, from planting stock grown on grafted plants at the University of Florida.

The five-acre seed orchard is one of three set up by IP in the Southeast. It is part of a sweeping genetics program presently being carried out by the Florida college and previously reported in PULP & PAPER. (See "Quest for the Super Tree," July 1956.) Several other pulp and paper companies in the Southeast are also taking part in the program designed to grow superior trees from carefully selected trees grown on company lands and then sent to the university for grafting on root stock. This program is also part of a broader program sponsored by the Southern Forest Tree Improvement Committee, a broad effort worked jointly by pulp and paper companies, forestry schools and state and federal forest services.

Some 168 seedlings were planted by International Paper in this initial orchard. Of the 14 seed orchards established in the South so far, IP's Baldwin County orchard at Bay Minette is considered one of the most successful. Many seedlings have begun to flower and seed-bearing cones are expected on the young plants by next year. (University geneticists estimate that their genetics program may be advanced as much as five years due to the prolific flowering on the Baldwin County seed trees. This early

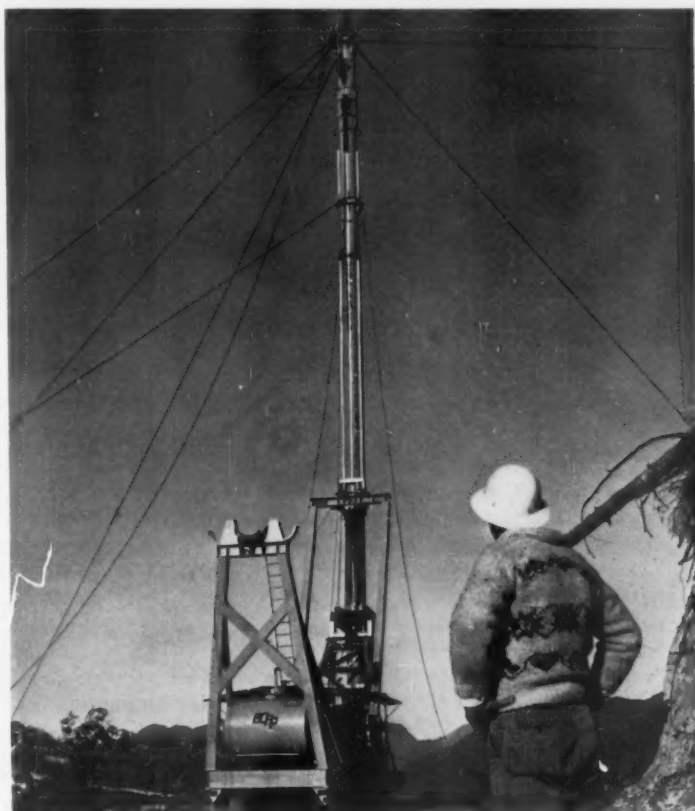
flowering will enable the geneticists to make an earlier evaluation than was first hoped for.)

## This is Also an Important Time Saving Unit

Something new are these portable spar poles, operating in British Columbia. The machine was designed, developed, built and put in use by B. C. Forest Products, Ltd., Vancouver, B. C. It facilitates faster rig-ups for logging settings and saves an estimated one-day's time in moving from one prime yarding setting to another.

Built of 26-in. diameter tubular steel, the spar weighs 8½ tons and stands 92 ft. high in erected position. It mounts on a wooden base equipped with 12 special-cast 34-in. diameter wheels 18-in. wide. The 1½-in. mainline, from Skagit winch drum, enters the tubular spar 15 ft. below the tip and emerges at the top on a flange-mounted fairlead. The haulback runs through the spar, off-centered for adequate separation and clearance.

One large tractor pulls the machine between settings on favorable terrain; two tractors used for moves involving rougher ground.



Portable Steel Tower Reduces Costs of Logging



# OLIVER OC-12

## KING-SIZE PRODUCER



*because of full-time power...even on turns!*

The new Oliver OC-12 is cut out for woods work—offering you a pulp-hustling advantage not found in any other tractor of its size.

It has POWER-TURN steering. This is the advanced steering system that means business—because it keeps full engine power on both tracks at *all* times. Sharp turns, gradual turns, *any* and *all* turns are made with two-track, full-time power.

Imagine the benefits of this Oliver exclusive in added production every

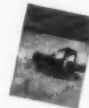
day! You winch heavier loads...keep them coming without letup...maneuver through the tightest working areas faster because every turn is made with equal traction as straight-away.

There's a steady dependability to the Oliver OC-12 that adds even more to its king-size profit returns. Efficient, high-torque diesel or gaso-

line 61 h.p. engine. Make a date with your Oliver Distributor for job-testing the OC-12.

### **Want to be shown?**

Sit down with all the reasons the OC-12 can pay off better in your logging operation. This picture-filled book has answers to all your questions. Ask for Bulletin I-1047.



**THE OLIVER CORPORATION**

400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors and matched allied equipment,



**BUILT TO KEEP BUSY IN THE WOODS**

## *Allis-Chalmers model D motor grader*

If you're looking for a machine that can do a wide variety of jobs in the woods — do them fast and at low cost, look to the Allis-Chalmers Model D motor grader. It is ideal for building and maintaining access roads, grading fire lanes, filling in washouts and handling many other forest assignments.

### **Choice of gasoline or diesel engine**

The Model D motor grader offers a choice of Allis-Chalmers 50-brake-hp gasoline or 50-brake-hp diesel engines. These engines provide four forward speeds to 25 mph, one reverse to 3 mph — offer dependable power, long life and simplified servicing.

### **Big grader design**

The Model D costs only one-third the price of a large grader — yet is designed with many big grader features. Single-member main frame . . . husky drawbar and one-piece circle . . . work-boosting ROLL-AWAY moldboard . . . ground-gripping tandem drive . . . easy-to-handle controls . . . and simple servicing — are some of the Model D features that contribute to outstanding performance on the job.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

### **Extra attachments for extra work**

These additional attachments insure year-round use of the D motor grader:

- **Rear-mounted  $\frac{3}{8}$ -yd loader** for fast, low-cost loading.
- **Hydraulic scarifier**, midship-mounted for maximum effective ground pressure. Cuts swath 27 $\frac{1}{4}$  in. wide.
- **Shoulder Maintainer** for safe, one-pass operation — provides quick precision shoulder work.
- **Snowplow** for fast, effective snow removal.

### **See the Model D grader today**

Call your Allis-Chalmers construction machinery dealer today. Ask him to demonstrate the versatile D grader right on your own job.

ROLL-AWAY is an Allis-Chalmers trademark.

**ALLIS-CHALMERS**

*Engineering in Action*

**INDEPENDENT HYDRAULIC ROTATION OF GRAPPLE**

**19' LOADING CLEARANCE**

**HOPTO**  
HEAVY DUTY—HYDRAULIC  
**LOG GRAPPLE**

**307° SWING**

**LOADS 30 CORDS PER HOUR INTO A GONDOLA CAR!**

Clearance to spare and grapple unit could be raised another three feet! Hydraulic outriggers leveled and stabilized unit and operator started loading car just 30 seconds after positioning truck!

Badger backs up the claim of cutting handling costs with proof! You can prove it yourself... show a *worthwhile, measurable* difference... shrink handling costs of pulpwood to a fraction of previous costs! Here's how you can:

**PROVE IT** by cycling time and swing! With a 307° *continuous* swing and a 20 second cycling time you handle more loads per hour and boom swing is automatically cushioned for faster, *safer* starts and stops!

**PROVE IT** by independent rotation of grapple! Rotation of loaded grapple is done during boom swing so load is in position for uniform piling at completion of cycle... and ready to take a new, *big, fast* 'bite' at other end of cycle!

**PROVE IT** by loading height! You have a *full 19'* clearance for every loading or stockpiling operation.

**PROVE IT** by mobility and set up time—HOPTO mounts on any ton and a half or larger truck... quickly moves from one location to another. Independently controlled outriggers level and stabilize unit, *from operator's seat*... unit is ready to operate *within 30 seconds*.

**PROVE IT** by its outstanding safety features, the heaviest-duty, largest GPM hydraulic system in the field... and the proven engineering features that have made a digger-shovel-crane adaptation of the HOPTO 307 the standard of comparison in the construction industry!

**WRITE TODAY** for complete information and specifications on the HOPTO 307. Compare HOPTO with any other unit and you will know why HOPTO is the difference between profit and loss on your pulpwood handling problems.

## BADGER MACHINE CO.

WINONA, MINNESOTA • Dept. X

Manufacturers of a complete line of heavy-duty, completely hydraulic grapples, cranes, diggers and shovels. One of the twelve models for wheel or track-type tractor mounting, for truck mounting, or complete wheel or track units is exactly right for your handling problems.



Independently operated rotator immediately above grapple positions unit for any angle... at any height up to 19' clearance!





## FAST, MOBILE CRANE HANDLES PULPWOOD IN ROME KRAFT YARDS

Thousands of cords of pulpwood daily move through the huge wood yards of Rome Kraft Company in Rome, Ga. Coming in by rail and truck, the wood is stockpiled or unloaded directly onto conveyors that carry it into the plant for conversion to Kraft paper.

To help move this tremendous volume of pulpwood, Rome Kraft Company recently added a second American Crane, a 700 Series with orange peel bucket. Up to 1800 cords of wood are handled daily by the American 700 Series Crane and an American Locomotive Crane!

Pace setter on every big materials handling job, the powerful American 700 Series is specially engineered from crawler pads to boom tip to eliminate unnecessary dead-weight. As a result, the machine offers an unusually high work capacity in relation to total weight. Operators set peak production rates and maintain them throughout the day, every day, because trigger fast air controls provide hairline load spotting accuracy with finger tip pressure! Consistently lower costs . . . for operation and maintenance . . . are proved by job records of 700 Series owners in every industry.

Your nearest American Distributor will be happy to explain why American Cranes are tops in performance and versatility—he has detailed information on a complete line of crawler and truck cranes that offer capacities from ½-yard, 12½ tons up!



**PICKING FROM STOCK PILE** (top) and swinging around to unload in a conveyor beyond the flat cars, is the big 700 Series American Crane owned by Rome Kraft Company. This conveyor carries the wood to debarking drums, then to storage. The American Crane also loads the debarked pulpwood from its storage pile into a conveyor supplying chip-pers. This operation demands maneuverability! Maintaining a continuous supply of pulpwood to conveyors demands fast, smooth operation.

**AMERICAN HOIST**  
and Derrick Company

1882-1957

**75** years of service

St. Paul 7, Minnesota



**UNLOADING, DECKING, LOADING AT**  
**Crandon Paper Mills, Inc.**  
 FT. MADISON, IOWA

with **LORAIN** SELF-PROPELLED **CRANE**

A 17½-ton Lorain Self-Propelled Crane, model SP-254W, equipped with a ¾-cord pulpwood grab, is a "one-man show" in this mill yard. The Lorain works everywhere, keeps incoming trucks on the move, feeds the mill on schedule. Here's an efficient yard operation and, of course, they use a fast, mobile, high-capacity, high-stacking Lorain Crane. As an extra work bonus, the Lorain doubles as a dragline for excavating and as a crane to unload and place plant machinery.

The mobile, rubber-tire Lorain SP-254W Self-Propelled Crane includes a long list of design features to speed up operations — simultaneous hoist-swing-travel; automotive-type air-steering; easy, fast-responding controls; 4 travel speeds in both directions — there are many more you should check!



**And Now—Increased Lifting Capacities  
 With New Square-Tubular-Chord Boom**

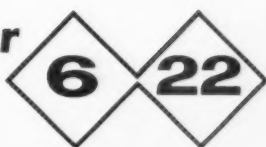
This new Lorain patent-applied-for crane boom offers startling advantages over other types. The main chords are of square tubing — the lacings of continuous round tubing welded at common points to the chords to create a "banding" effect. The result: a lighter boom that produces increased lifting capacities and longer reaches.

*Ask your Thew-Lorain Distributor for facts!*

**THE THEW SHOVEL CO., LORAIN, OHIO**

**THEW**  
**LORAIN®**

**6 Horsepower  
22 Pounds**



The new Homelite 6-22 gives you everything you need for top pulpwood production. Handles every type of cut without binding . . . felling, bucking, limbing. Full 6 horsepower has plenty of lugging power to give you fastest cutting with either the 14" or 18" bow; with straight blade you can bring down trees up to 7 feet in diameter. Famous Homelite engine stands up under the grind, gives you longer engine life with less maintenance and down-time.



## They're New . . . They're Power Packed!

# 2 NEW HOMELITE

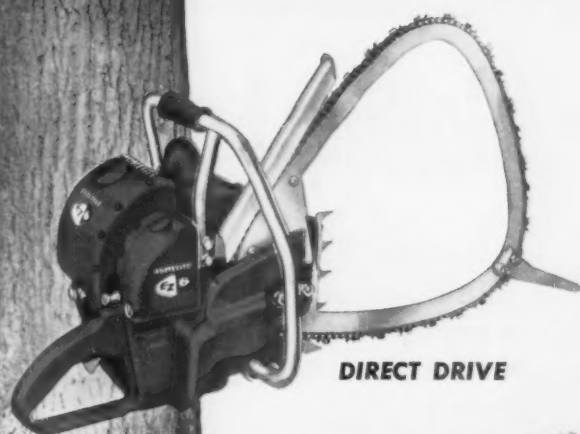
## 6 Horsepower "Power Twins"



**6 Horsepower  
19 Pounds**



Lightest, most powerful direct drive chain saw made. With 14" plunge-cut bow, it makes quick work of any pulpwood cutting . . . felling, bucking, limbing. Its 6 horsepower packed into only 19 pounds makes operating and handling easy. Cuts through 8" oak in 6 seconds, 18" pine in 14 seconds.



**LAST CHANCE TO WIN...CONTEST CLOSSES SEPTEMBER 30...**

Nothing to buy, nothing to write, no obligation! Contest closes Sept. 30, so hurry! You may have three chances to win. Grand Prize: a free Homelite chain saw every year for life, PLUS 25 chain saws being given away by Homelite District Offices, PLUS hundreds of chain saws awarded by Homelite dealers in their own local contests. Be sure you're registered! Limited to residents of the United States and subject to local, state, county and city laws.

# HOMELITE

A DIVISION OF TEXTRON INC.

7709 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

Manufacturers of carryable pumps, generators, chain saws, blowers



**HOMELITE BUILDS AND SELLS  
MORE CHAIN SAWS THAN ANY  
OTHER COMPANY IN THE WORLD**





# Getting bonus power...extra line pull

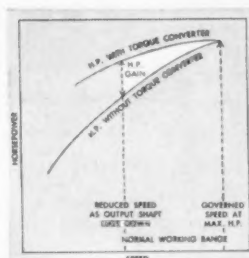
**Size for size, Link-Belt Speeder shovel-cranes deliver greater usable horsepower than other machines using the same engines**

Engine size alone is not a correct measure of a shovel-crane's actual *usable* horsepower. Thus, it's important to know Link-Belt Speeders deliver more *usable* horsepower or line pull at the drums than other machines using the same engine, yet remain well within engine manufacturers' recommended operating speeds.

*Why?* A Link-Belt Speeder is designed and built with extra size and strength in shafts, gears, clutches and structural members. It has the strength to fully utilize available engine power.

It's another reason why Link-Belt Speeder shovel-cranes are setting entirely new high standards of efficiency. For complete facts, contact your Link-Belt Speeder distributor or write—Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

14,828



**TORQUE CONVERTERS** are available for all Link-Belt Speeder models, supply power to match the load . . . provide sustained power, increased line pull to maintain high production even with heavy loads and to handle these big loads smoothly, accurately!



**POWER HYDRAULIC CONTROLS** are operated with the flick of a finger, provide fast, positive response . . . perfect feel of the load for added safety. They're standard equipment on all crawler and rubber-tired models ½ to 3-yd, 8 to 75-ton capacities.

*It's time to compare . . . with*

## LINK-BELT SPEEDER

*Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls*

# **NOW! 12-SPEED MOBILITY** **IN FORD'S MOST POWERFUL TRACTOR**



*Accessories—bumper and wheel weights.*

## **NEW FORD 840 POWERMASTER**

Now, for the first time, you can have the unmatched mobility of 12 speeds (factory option) in Ford's heaviest, most powerful utility tractor.

The new Ford 840 Tractor, with all of the Blue Ribbon features of the big Powermaster series, is available with either 4 speeds for general use or an over-under transmission where needed. Twelve forward speeds... 3 reverse speeds... 3 PTO speeds... the answer to any speed need, from creeper operations such as finish grading and transplanting, up to 20 mph and more for fast transport!

### **GEARED FOR ACTION**



**Easy Back-and-Forth Shifting.** The new Ford 840 Powermaster has a simple, horizontal shift pattern. Forward-reverse shifting is fast and effortless for hook-up, loading, backfilling, dozing... smooth, positive action for greater production on any shuttle-type job. Get all the low-cost details from your dealer today, or write to: Tractor and Implement Division, Ford Motor Company, Birmingham, Michigan.

**YOU SEE MORE FORDS BECAUSE THEY SAVE MORE MONEY!**

Malecki Brothers profit with their International Drott TD-18 Skid-Grapple in the St. Helens tree-farm area, where they are salvage-logging for Weyerhaeuser Timber Company. The TD-18 loads a truck in ten minutes, with each load averaging 6,000 bf. Exclusive top grab-arm, under independent hydraulic control, clamps load securely, releases it gently at a touch of the control lever.



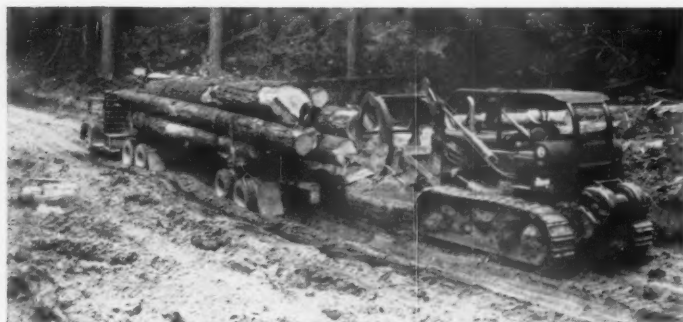
## HOW THE

# one-man-operated Skid-Grapple

**"REPLACES HEEL-BOOM...  
SETS UP ANYWHERE!"**

"This rig saves us two men over our old heel boom loading method. And it gives us a flexible operation—we can set up anywhere and be working immediately. It's busy all the time...sorting, yarding, bringing in scattered logs, pushing trucks through soft spots, maintaining or building haul roads. The International Drott TD-18 Skid-Grapple has made this a one-man operation."

—Jim and Bob Malecki,  
Toutle, Washington



When heavy truck-loads bog down in soft going, the TD-18 uses power-holding, positive traction to boost them out—then switches from grapple to bucket to fix up the road! Odd jobs are always turning up, and the International Drott TD-18 takes 'em as they come!



TD-18 operator has unrestricted visibility to skid and spot loads accurately, without danger to help or equipment. Impact of rough-ground semi-skidding or quick-dumping 3,000 bf loads is cushioned by exclusive shock-swallowing Hydro-Spring. International Drott Skid-Grapples can work anywhere there's room enough to handle the logs.

You can buy versatile, big-capacity Skid-Grapple performance to team with your choice of four International crawler sizes—to handle logs, pulpwood, logs and lumber, or brush and mill-waste. Ask your International Drott Distributor for a demonstration—find out what a money-maker this one-man machine can be for you!

International Harvester Company, Chicago 1, Illinois  
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



**INTERNATIONAL  
DROTT**





## Specify SOLVAY Chlorine and

## get 4-Way Service

These four services are available to you without extra cost when you specify SOLVAY Chlorine:

**1 Delivery Service.** SOLVAY's Chlorine production centers at Syracuse, N. Y., Moundsville, W. Va., Hopewell, Va., Brunswick, Ga. and Baton Rouge, La. — plus a network of local distribution centers — assure prompt delivery of both carload and less than carload quantities.

**2 Technical Service.** SOLVAY maintains a special Chlorine Section in its Technical Service Department to assist you in the use, handling, storage and in all applications of chlorine, including textiles, paper, water and sewage.

**3 Safety Service.** SOLVAY has pioneered the development of chlorine safety programs and equipment SOLVAY-engineered Emergency Kits for cylinders, 1-ton containers and tank cars are avail-

Soda Ash • Caustic Soda • Calcium Chloride • Chlorine  
Potassium Carbonate • Sodium Bicarbonate • Chloroform  
Caustic Potash • Ammonium Bicarbonate • Sodium Nitrite  
Cleaning Compounds • Ammonium Chloride • Vinyl Chloride  
Aluminum Chloride • Snowflake® Crystals • Methyl Chloride  
Monochlorobenzene • Para-dichlorobenzene • Hydrogen Peroxide  
Ortho-dichlorobenzene • Methylene Chloride • Carbon Tetrachloride



able to users of SOLVAY Chlorine on a purchase or loan basis. SOLVAY safety wall charts give instructions on unloading, handling and first aid.

**4 Literature Service.** SOLVAY has a series of technical and engineering service bulletins on chlorine that include physical and chemical properties, analysis and uses.

*Mail for literature, further information!*



**SOLVAY PROCESS DIVISION**  
ALLIED CHEMICAL & DYE CORPORATION  
61 Broadway, New York 6, N. Y.

Please send me without obligation SOLVAY Technical Bulletins checked:

- ☐ #7—"Liquid Chlorine" ☐ #11—"Water Analysis"  
☐ #8—"Alkalies and Chlorine in Treatment of Municipal and Industrial Water"  
☐ #12—"The Analysis of Liquid Chlorine and Bleach"  
☐ #14—"Chlorine Bleach Solutions"  
☐ Please have your representative call.

Name

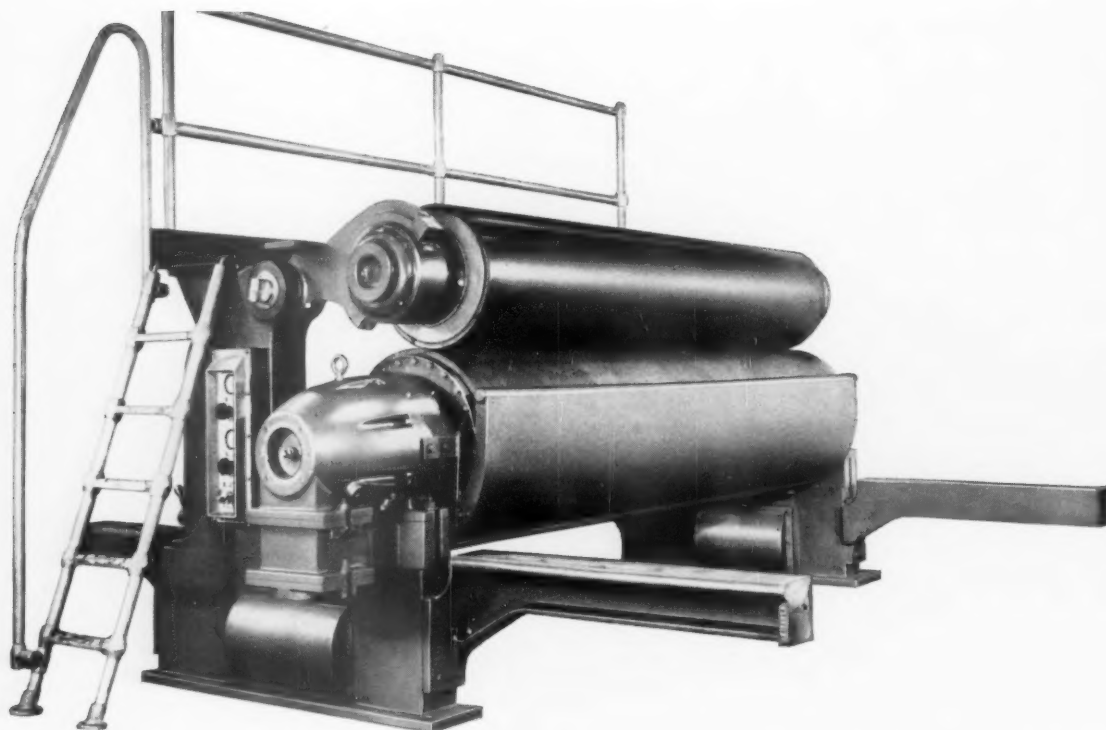
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Company

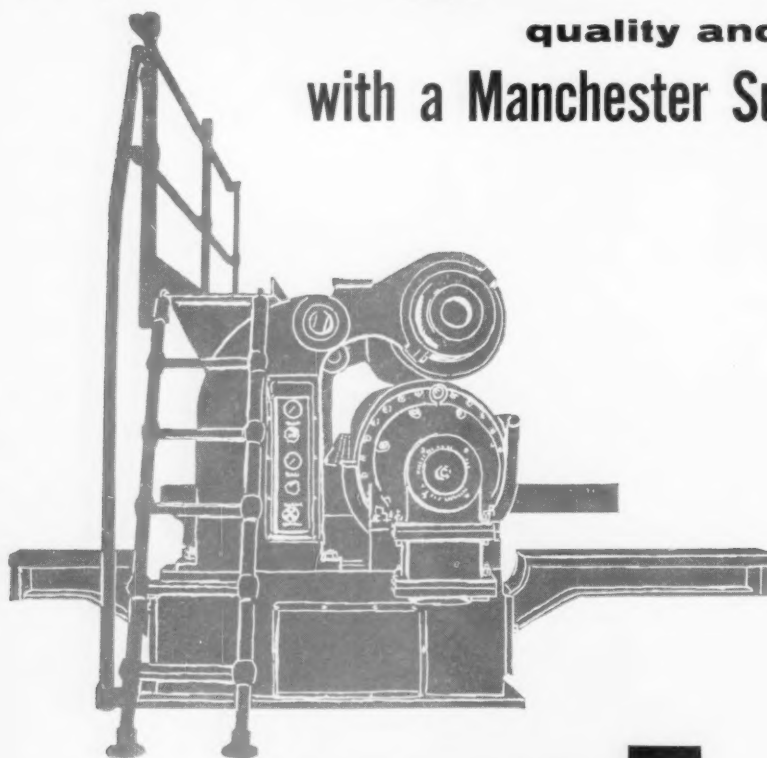
Phone

Address

City  Zone  State  BG-97



**quality and profit start here  
with a Manchester Suction Main Press**



**THE MANCHESTER  
MACHINE COMPANY**

**MIDDLETOWN, OHIO**

SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY



Here's what you get with a Manchester Suction Main Press:

1. More complete water removal.
2. Better moisture control.
3. Less Broke.
4. A higher drying rate.
5. Cleaner felts. Longer felt life.

All this adds up to a more uniform top-quality sheet with better profit and a stronger competitive position for your mill.

This simple, compact and ruggedly designed press is engineered as a complete unit, ready to install in your present machine with no expensive changes and prolonged shutdown.

Write us for complete information applied to your needs.

# 2-point slime control plan

## first scientific solution to the slime problem

Add a bacteriologist or chemist to your staff without cost!

The Technical Service Representative from United States Movidyn Corporation is university-trained, and thoroughly experienced in slime control. His job is *service* rather than selling, and he'll work with you for as long as he's needed. Using the compact mobile laboratory carried in his car (or your mill laboratory) he'll analyze and solve your slime problem under actual operating conditions—and at no additional cost to you!

1

One product can solve your slime problem economically!

No need to alternate with any other slimicides! SLIMODYN contains three powerful heavy metal toxicants for use in most white water systems. MICRODYN is specially formulated for application in paper mills where mercurials are objectionable. SLIMODYN and MICRODYN, being completely dispersible in water, are suitable for spraying after washups, and adsorb readily on surfaces to build a residual germicidal activity. They are relatively unaffected by changes in pH; will not shorten wire life or cause foaming.

2

For complete information, contact

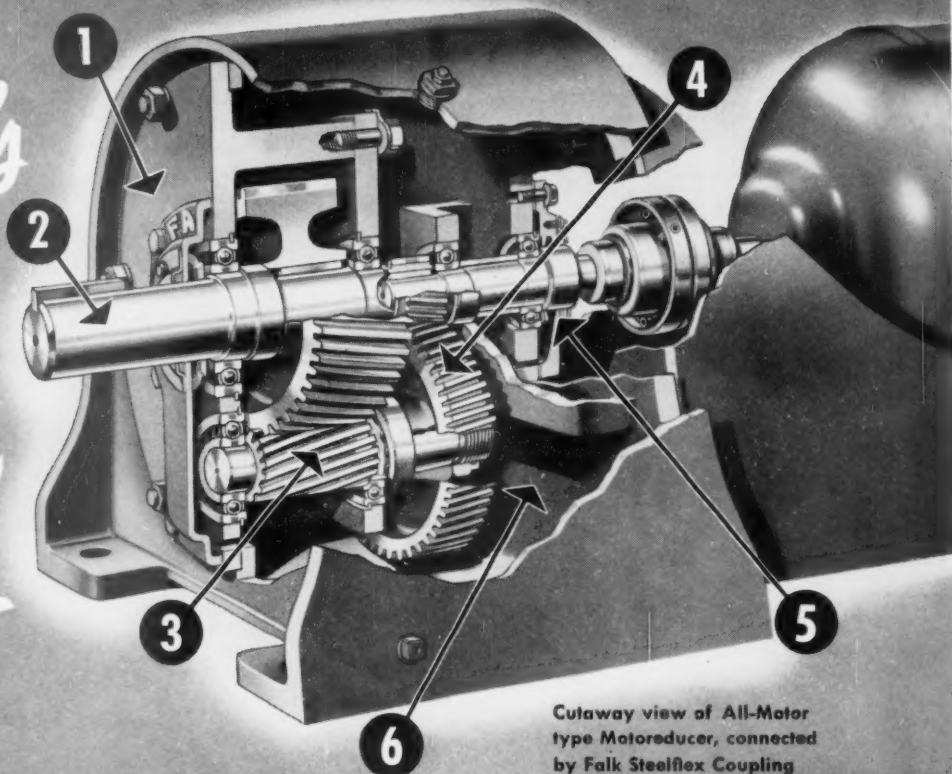
UNITED STATES

**Movidyn** CORPORATION

863 N. Orleans Street  
Chicago 10, Illinois  
Telephone WHitehall 3-1530  
Cable: MOVIDYN



*Here's  
the  
inside  
story—*



Cutaway view of All-Motor type Motoreducer, connected by Falk Steelflex Coupling to standard NEMA frame motor

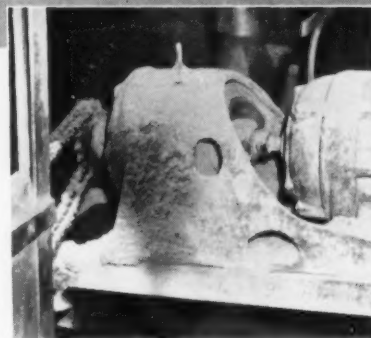
## WHY Falk Motoreducers give better service—have longer life

Here is the "inside story" behind the all-steel All-Motor type FALK Motoreducer's universal reputation as a gear drive unmatched in quality, efficiency, dependability, ease of maintenance and long life. These "In-built" factors are—

- 1 ALL-STEEL HOUSINGS.** Rugged, strong, rigid...all parts are manufactured from heavy steel plate, formed and welded in the Falk Weld Shop.
- 2 LARGE OVERHUNG LOAD CAPACITY.** Large shafts, oversize bearings...rigid mountings with wide bearing spans to handle maximum applied loads.
- 3 PRECISION GEARING.** Heat-treated alloy steel gearing, precision cut and shaved after heat treatment to eliminate distortion. Quiet, crown-shaved pinions.
- 4 EXTRA-CAPACITY GEARING.** Special extra-capacity gear-tooth form with larger contact area gives greater strength, higher load-carrying capacity.
- 5 SEALED HOUSINGS.** Splashproof, dust-proof, oil-tight construction. Dual closures and one-way vents keep oil in, dust and moisture out.
- 6 POSITIVE LUBRICATION.** Large sump capacity...oiltight construction assures clean lubricant...revolving elements lubricated by direct dip.

When you buy or specify the All-Motor type FALK Motoreducer, you get all these—plus the tremendous advantage of full interchangeability of motors. Switch motors as desired—use any make, style or type of standard foot-mounted motor within the unit's AGMA rating—with a minimum of difficulty or "down time."

Available in sizes up to 75 hp—with or without motor—from convenient factory, field or distributor stocks, from coast to coast. **Write for Bulletin 3100.**



### 60,000 HOURS WITHOUT A FAILURE!

Sixty thousand hours is a lot of hours—but the FALK Motoreducer in the unretouched photo above has served that long without failure or need of repair.

This 3 hp unit is one of over 60 FALK Motoreducers in daily service in an Eastern plant of a large milling company, whose president says, in part:

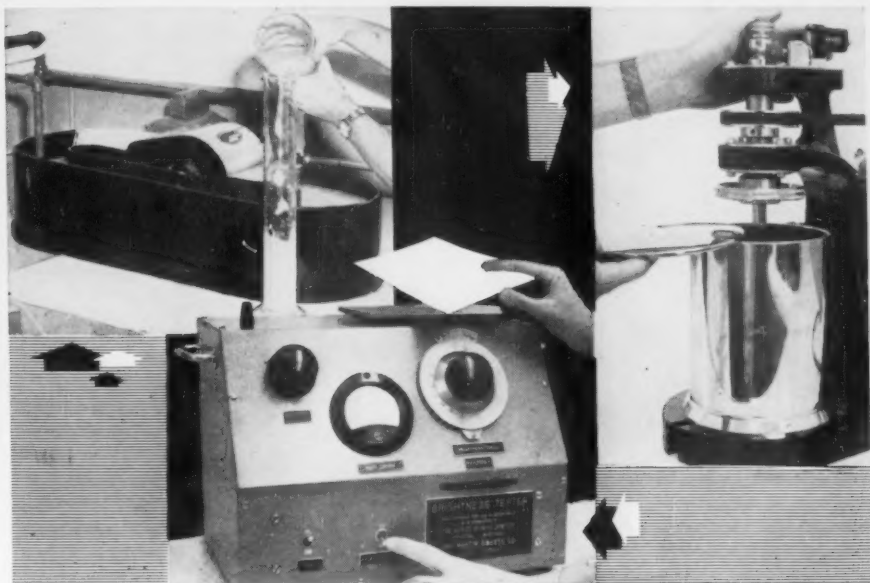
"One of the main advantages of FALK Motoreducers is their adaptability to any motor. Reducers and motors can be easily interchanged.... Our service records confirm the wisdom of our choice of FALK equipment as our standard."

**FALK** ...a good name  
in industry

THE FALK CORPORATION, MILWAUKEE, WISCONSIN  
MANUFACTURERS OF

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

# E·Z·PULP



This modern laboratory equipment is one phase of our emphasis on controlled quality. From woods to goods skilled technicians and operators with long experience guide the production of E-Z PULP to establish it as an outstanding furnish for any sheet where bleach pulp is needed.

Supporting the men and equipment are natural resources consisting of ample forest reserves of both softwood and hardwood and an abundant supply of fresh, purified water.

For full information write E-Z PULP Sales Division, Department E, Box 491, Tuscaloosa, Alabama.



## Gulf States Paper

C O R P O R A T I O N

E-Z PULP SALES DIVISION, TUSCALOOSA, ALABAMA

# How to Get More Production From Your Sheeters

... and other web-feed equipment

In more than half a century of experience designing roll stands to keep pace with the ever-increasing speeds of Clark-Aiken Cutter Lay-boy Units and to enable users to take fullest advantage of their production potentials, Clark-Aiken engineers have developed many ways to facilitate loading, speed roll changes and insure accurate, trouble-free feeding.

Using sturdy, rigid Clark-Aiken roll stands with fast-loading safety half

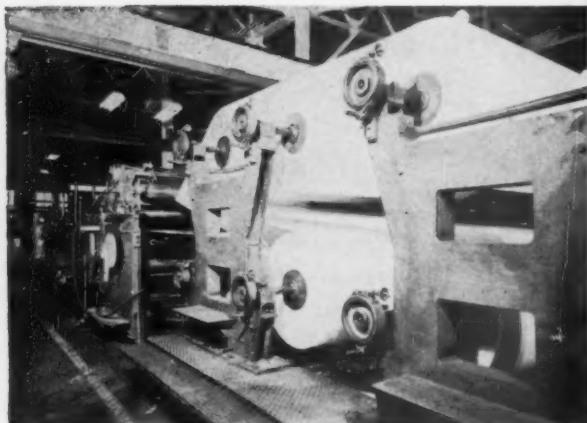
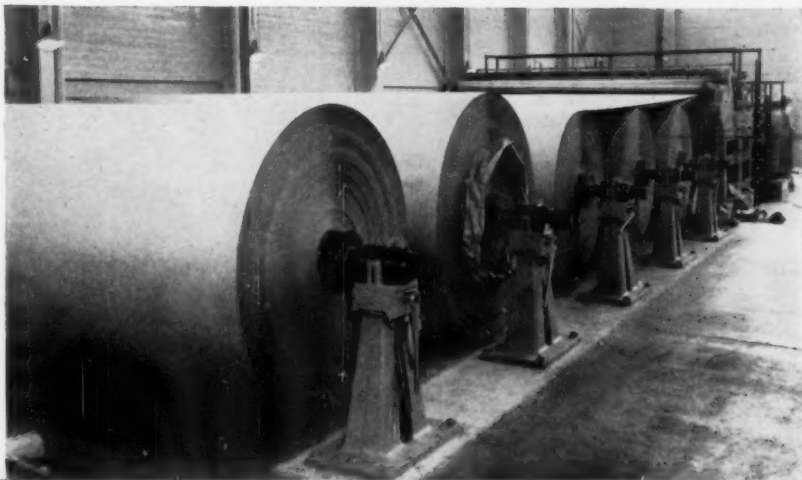


Photo courtesy Hammermill Paper Company

## Clark-Aiken

**STUB ARBORS**  
another way to  
speed roll changes  
... and save labor

Weighing approximately forty pounds apiece, the two stubs of the Clark-Aiken Stub Arbor Assembly are easily handled by one man and readily inserted in close places where a single long shaft, weighing more than a hundred pounds, could not be handled. Fixed bearing and depth limit collars can't jamb, fall off or slip while the roll is in position, insuring and maintaining perfect alignment. Ruggedly made of special steel to support heaviest rolls and give many times the service life of solid shafts. One size fits rolls of any width, eliminating the necessity of carrying large inventories of shafts of different lengths. Write for Stub Arbor bulletin.

bearings, quick vertical and alignment adjustment and precision adjustable tension brakes, and employing proven turntable and transfer car principles, they can plan roll stand installations exactly suited to individual plant conditions that will greatly increase loading efficiency and cut many valuable minutes from down time required for roll changes. In doing so, they have often saved mills large investment in new machines which, otherwise, would have been necessary to meet production requirements.

If you are interested in getting maximum production from your sheeters and other web-feed equipment ... new or old ... Clark-Aiken engineers can, doubtless, offer some valuable suggestions. Phone or write

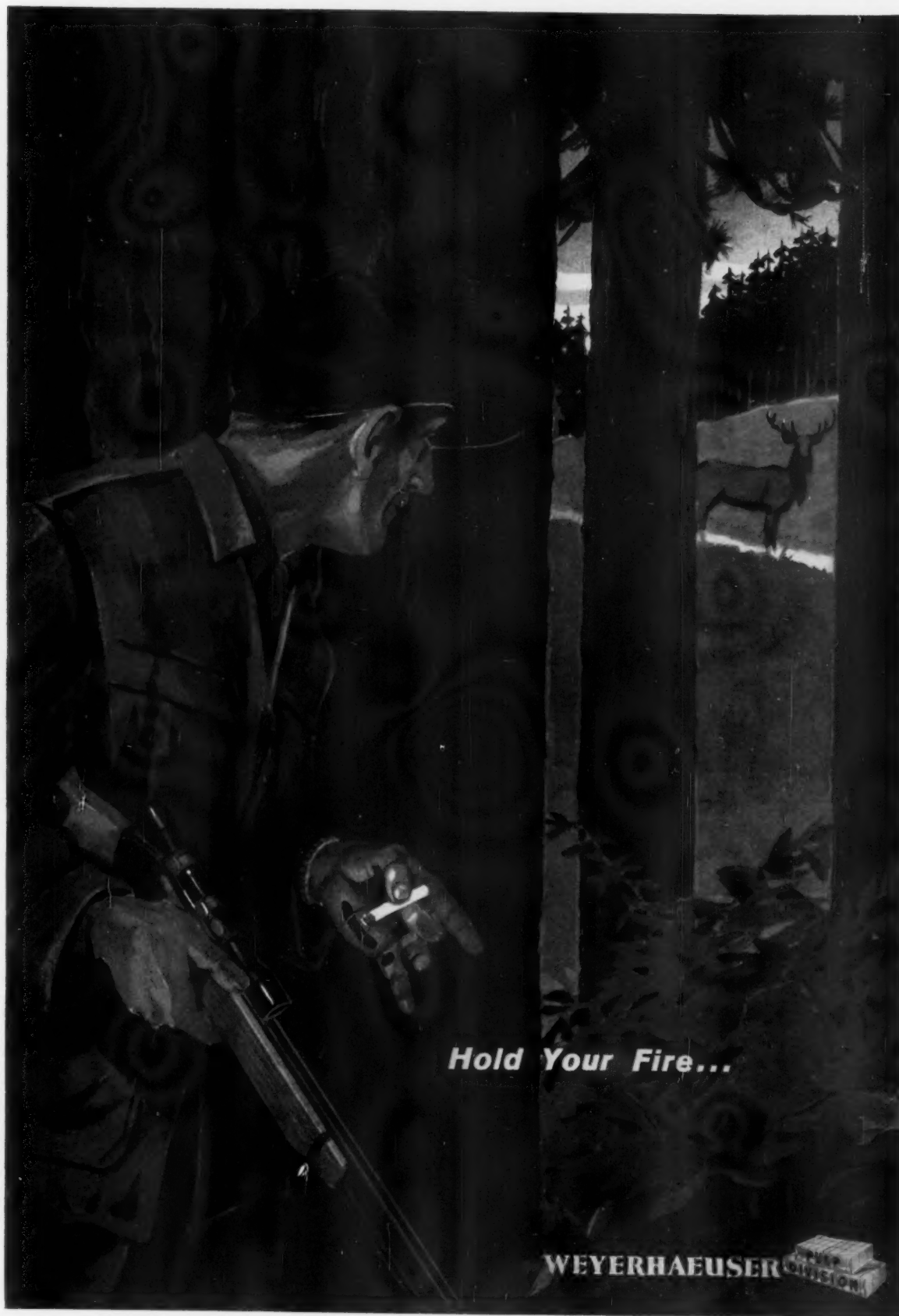


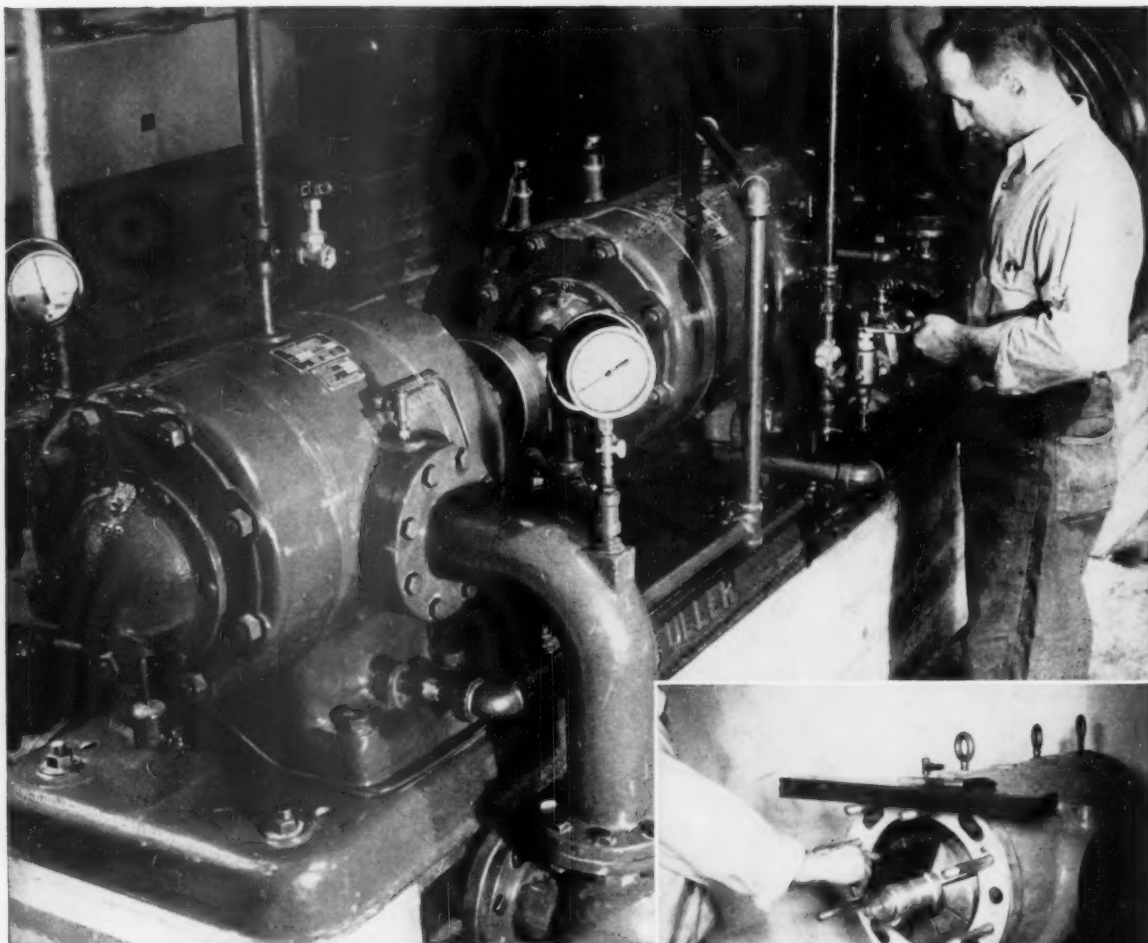
THE  
**Clark-Aiken**  
COMPANY

957 SPRINGFIELD ROAD

LEE, MASSACHUSETTS







## PERFECT COMBINATION OF MEN AND MACHINES

Blade inspection

Providing plant air for varied uses imposes heavy responsibility on both the compressor and its operator to keep production moving.

The simplicity of the Fuller Rotary Compressor principle reduces maintenance to an absolute minimum; by the same token, operator's universal pride in Fuller Rotary performance contributes to

longer life of the compressor. Few moving parts and smooth operation limit the operator's work to periodic inspection.

This perfect combination of men and machines is worth investigating, with an eye to economies you, too, can enjoy. Write to Fuller Company, compressor sales department for detailed information.

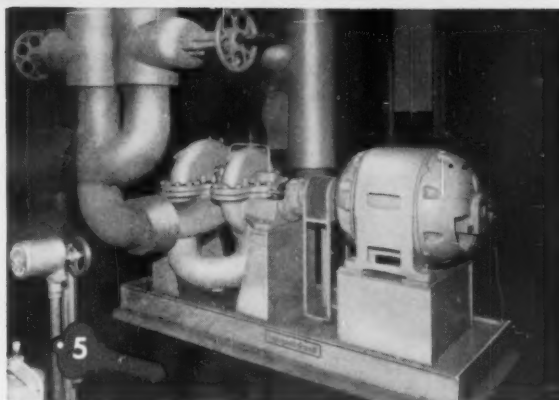
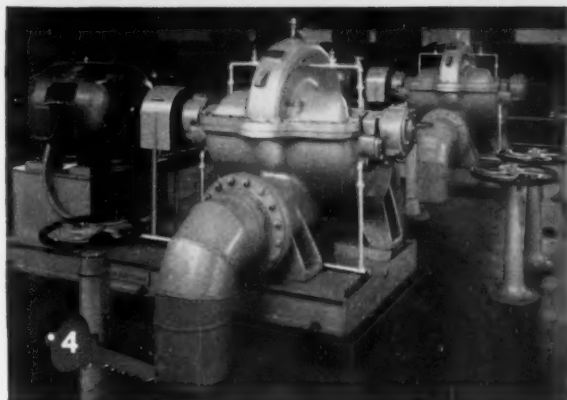
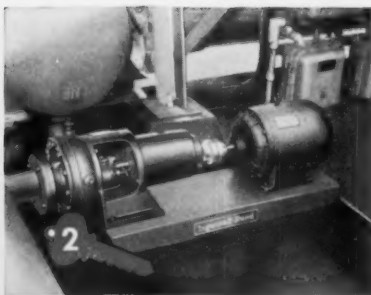


**FULLER COMPANY**  
**128 Bridge St., Catasauqua, Pa.**

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION  
Birmingham • Chicago • Kansas City • Los Angeles • San Francisco • Seattle

C-316  
4686

PIONEERS OF HIGH-EFFICIENCY VANE TYPE ROTARY COMPRESSORS SINCE 1930



## Five Keys to LONG-RANGE ECONOMY on your general-purpose pumping jobs

The Ingersoll-Rand pumps shown feature several different designs and types. Yet they all have one thing in common—the ability to give you low-cost performance on your general purpose pumping jobs.

When you install an I-R pump, you can count on continued efficient operation—with a minimum of time out for attention and maintenance.

In addition to the pumps shown, Ingersoll-Rand manufactures a complete line of single and multi-stage pumps of horizontal and vertical design for every job application. See your I-R representative for full information on the pump which best meets your needs.

**1. MOTORPUMPS:** Free from base plates, couplings and alignment problems, I-R Motorpumps can be mounted in any position that gives the simplest, most economical installation. They are especially designed for continuous full load service, with a wide range of capacities from 5 to 1800 gpm and heads up to 600 ft. Available in single, two and four-stage units.

**2. CRADLE-MOUNTED PUMPS:** Built with separate pump and drive units, coupled and mounted on a sturdy base plate, I-R Cradle-Mounted Pumps come in one and two stages, with capacities from 5 to 2800 gpm and heads up to 525 ft. They can be equipped with any drive, and provide easier accessibility, over-sized bearings and greater accessibility.

**3. SINGLE-STAGE HORIZONTALLY-SPLIT PUMPS,** with double mechanical shaft seals: For capacities from 275 to 2400 gpm and heads to 350 ft., maintenance-free DMV and DHV pumps are provided with double mechanical shaft-seals and permanently lubricated sealed bearings. Troublesome stuffing box maintenance is eliminated, and bearings do not require any attention or lubrication throughout the life of the pump.

**4. SINGLE-STAGE HORIZONTALLY-SPLIT PUMPS,** conventional design: The Class AFV unit illustrated is typical of the standard I-R line of single-stage horizontally-split centrifugals, with capacities ranging from 25 to 50,000 gpm, and heads from 20 to 350 ft. Stuffing boxes are extra deep, and equipped with water seal cages. Any type of drive may be used.

**5. TWO-STAGE HORIZONTALLY-SPLIT PUMPS:** I-R two-stage Class GT pumps are available in capacities up to 2200 gpm for discharge heads up to 1050 ft. Outstanding performance is assured by such features as extra deep stuffing boxes, renewable shaft sleeves and wearing rings, carefully designed liquid passages and volutes, and efficient closed-type impellers.

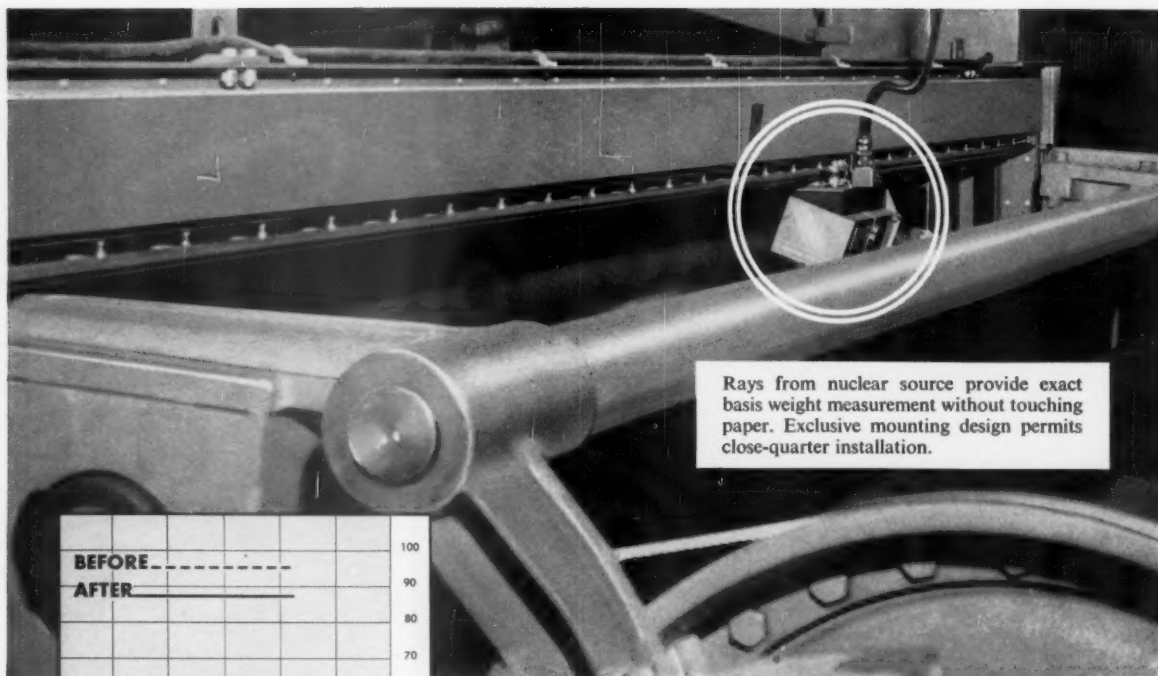


### Ingersoll-Rand

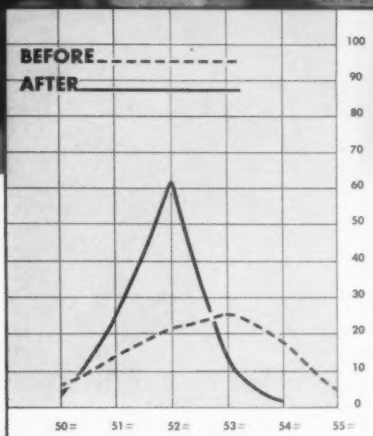
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PUMPS • ROCK DRILLS • GAS & DIESEL ENGINES  
COMPRESSORS • CONDENSERS • AIR & ELECTRIC TOOLS





Rays from nuclear source provide exact basis weight measurement without touching paper. Exclusive mounting design permits close-quarter installation.



Per cent of Time on Spec.

**BEFORE**, when hand weighed tear sheets are used for control, production can vary beyond tolerance.

**AFTER** installation of Curtiss-Wright System, uniformity sharply increases.



Operator sets target weight selector on control panel. Profile and machine direction variations are presented on separate wet end recorders for machine tender's convenience.

## Curtiss-Wright Control System Maintains Accurate Basis Weight Production for P. H. Glatfelter Co.

The P. H. Glatfelter Company of Spring Grove, Pa., produces up to 450 tons per day of fine grade paper. To insure continuous quality and maintain peak production levels on their newest fourdrinier, this leading paper manufacturer relies on a Curtiss-Wright Basis Weight Control installation to reduce weight variations in both machine and profile directions.

With Curtiss-Wright wet and dry end weight control systems, accurate settings on moisture extraction equipment can now be made. Machine speeds can be increased or steam requirements lowered, since the sheet enters driers in the driest possible condition.

Learn how Curtiss-Wright Basis Weight Control Systems can increase your on-weight production quality. Write Industrial Controls Dept., Curtiss-Wright Electronics Division, Carlstadt, New Jersey.

#### WEST COAST REPRESENTATIVE:

Western Dynamics Co., 444 Dexter  
Horton Bldg., Seattle 4, Wash.

#### CANADIAN REPRESENTATIVE:

Electronics Associates, Ltd.,  
4616 Yonge St., Willowdale, Ont.

Systems Frieske & Hoepfner



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in 60 cities in the United States, Europe,  
Latin America, Africa, and Asia

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In New England—CARTER RICE STORRS & BEMENT



*But There's one thing they agree on:*  
**YOU CAN DO IT BETTER with <sup>E.D.</sup> Jones®**

You may favor one way of preparing stock for kraft papers — the fellow in the next mill may be just as strong for another — even on the same type of furnish.

But whatever system you choose, you'll both find Jones quality equipment to fit it . . . and to help you produce better paper, more economically, and with a minimum of operating cost, maintenance, and down-time.

Only Jones is equipped to supply all types of stock preparation machinery . . . pulpers, beaters, disc and conical refiners, and screens.

So Jones is not limited to any one system. Whatever your stock preparation problem, you can count on your Jones representative for sound and unbiased recommendations, backed by Jones' reputation for quality and performance and more-than-a-century of paper mill know-how.

*Ask your <sup>E.D.</sup> Jones man first...*

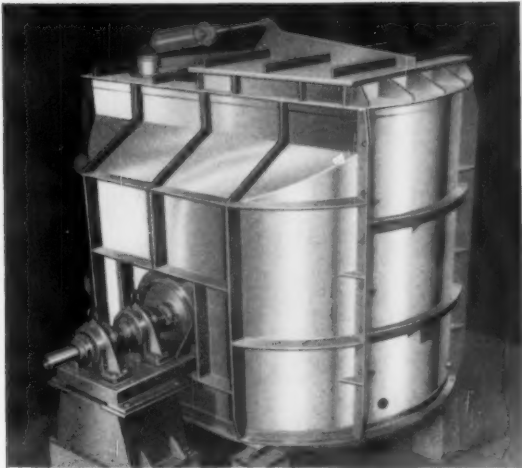
**E. D. JONES & SONS COMPANY**  
 Pittsfield, Massachusetts  
 BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

**In Canada:**  
 The Alexander Fleck, Ltd.  
 Ottawa

**Export Agents:**  
 Castle & Overton, Inc.  
 New York 20, N. Y.

Foreign Licensees: FRANCE, Batignolles-Chatillon • SPAIN, Gabilondo



**ED Jones****HI-LO PULPER**

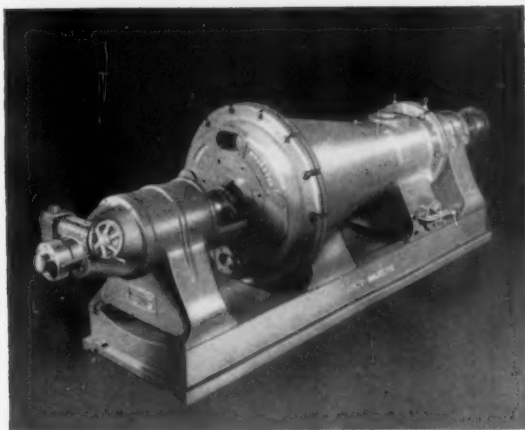
Engineered to eliminate the compromise imposed by conventional single-rotor pulpers between maximum circulation and complete defibering, the HI-LO employs two separately powered rotors to provide maximum pulping and complete defibering, with significant savings in time and power. For details, ask for Bulletin EDJ-1063.

**ED Jones****DOUBLE-D REFINER**

WITH



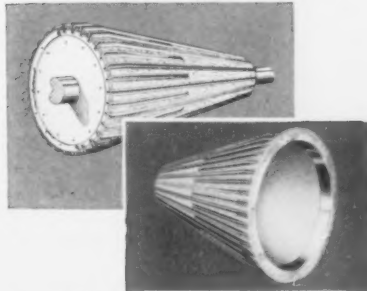
The only unit of its kind with two stages of refining in one machine, the Jones Double-D can actually do twice the work of conventional refiners because it has double the refining area — 2200 square inches in the 42" model; produces stock of equal or better quality at a considerable saving in operating cost. Ask for Bulletin EDJ-1083.

**ED Jones****MAJESTIC JORDAN**

One of the most popular sizes in the Jones "family" of Jordans, the Majestic is second in size only to the Jones Leviathan. It offers efficient use of horsepower in quantity production, a wide range of tackle and a choice of handwheel, worm gear or Accru-Set® controls.

All Jones Jordans have split small heads and self-contained bearings for quick, easy dismantling and reassembly.

ITALY, de Bartolomeis • JAPAN, Mitsubishi

**REVOLUTIONARY ADVANCE****In Jordan Plug Design**

In addition to the strongest and most adaptable solid plug ever developed, Adapta-Plug is available in sleeve form for easy, economical conversion of old worn plugs.

**ED Jones****Adapta-Plug**

Completely bandless, easily stripped and filled. Inverted-wedge-type slots hold bars firmly in place, eliminate hazards of slot wear and corrosion. Any desired edge available. Write for Bulletin EDJ-1094.

**Complete ONE-PIECE assembly to fit shell of any Jordan****ED Jones****FULBAR SHELL FILLINGS**

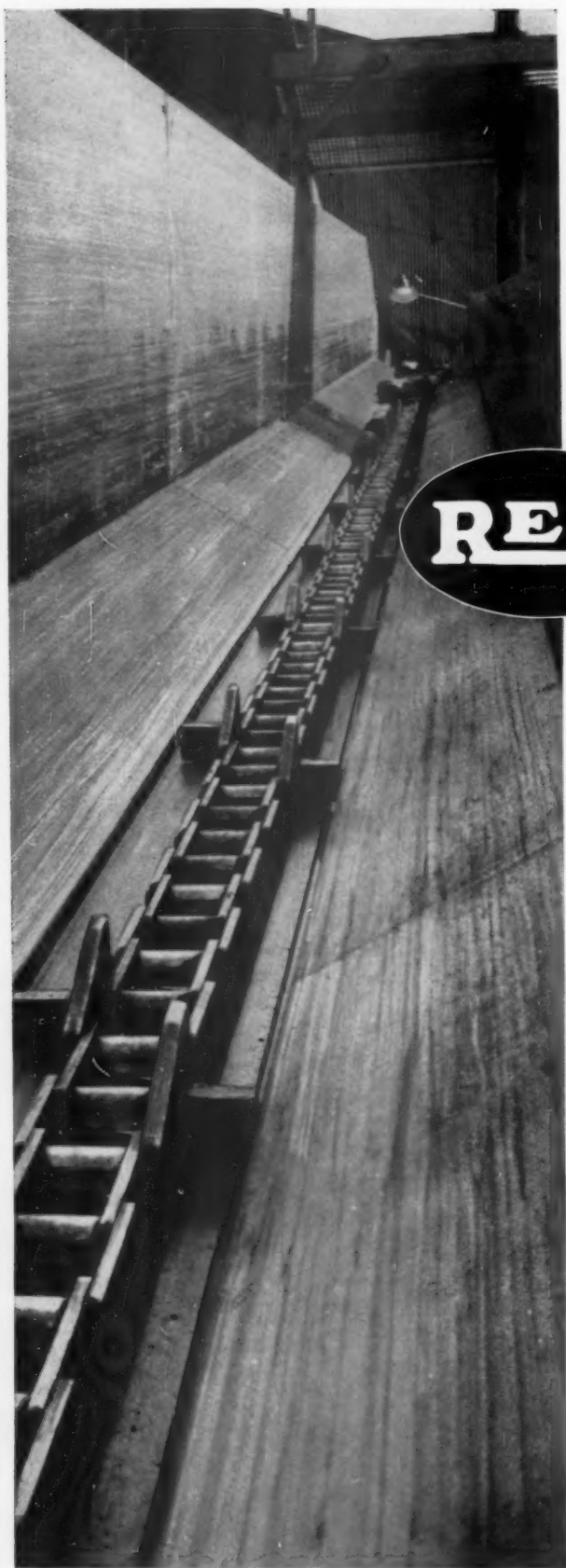
Ideal filling for any Jordan, new or old, of any make. No keys or wedges needed. Easy to grind in. Many other advantages. Write for Bulletin EDJ-1094.

**E. D. JONES & SONS COMPANY**

Pittsfield, Massachusetts

Builders of Quality Stock Preparation Machinery

In Canada: The Alexander Fleck, Ltd., Ottawa



*The Best Yet for  
Woodyard Service...*

**REX**

**SW150**

## **Conveyor Chain**

CHAIN Belt Engineers are never satisfied—always seeking to improve every Rex product—to do a better job for every service. Sometimes the improvement is in design, sometimes in material and manufacture. Always the goal is a better product—a chain for more wear resistance, greater fatigue strength, more chain life and trouble-free service per dollar of investment.

The new Rex SW150 Chabelco, an all steel chain specially designed for woodyard service, is the best yet. It is a direct replacement for A132 or A132WS—runs in the same troughs and over the same sprockets. It will prove the lowest service dollar investment for woodyard chain you've ever made.

You'll have the best woodyard chain you can buy if you use Rex SW150 Chabelco Woodyard Chain. Your CHAIN Belt Distributor will recommend it for the ultimate in long life under today's expanded operating conditions. He'll be glad to tell you more about Rex SW150 Chabelco Woodyard Chain.

CHAIN Belt Company, 4691 West Greenfield Avenue, Milwaukee 1, Wisconsin.

**CHAIN BELT**



Vacation for the Appleton man who calls on you? Seeing isn't always believing, even through the eye of the camera. A 12-hour workday is hardly a holiday. And that's about par for the five-day course on felt technology your Appleton man takes each year. Worth it, though, because it *keeps* him qualified to help you with your problems of felt application and performance. Appleton Woolen Mills — *a working partner with the paper industry* — Appleton, Wisconsin.

**Appleton felts**





# FORCED TO CHANGE RAW MATERIALS?

## *Quality control problems can be solved despite dwindling supplies and rising costs*

Maintaining quality—that's your big problem when switching to mixed hardwoods, waste or other lower cost and more available raw material.

Bauer equipment shown on this page is helping mills meet this serious challenge successfully. Variations encountered in processing are leveled off and can be controlled automatically ahead of the paper machine by pressure refiners regulated through the couch vacuum.

Incidentally, the Bauerite Process of making

groundwood type pulp from chips and the Bauer-Bale system of preparing pulp for shipment or storage were also developed to help you keep pace with the changing supply situation.

Our experience may well serve you profitably. Why not ask the Bauer man, or write for the facts today?

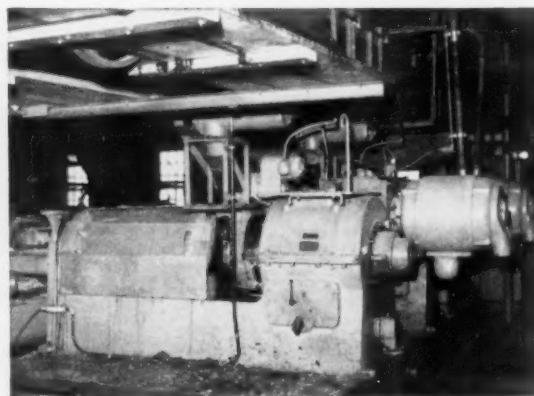
**THE BAUER BROS. CO.**  
1706 SHERIDAN AVE., SPRINGFIELD, OHIO



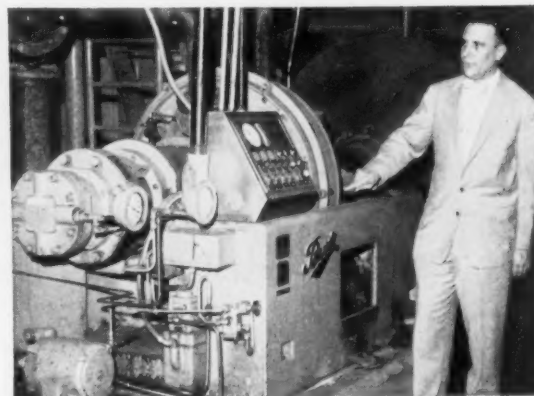
Centri-Cleaners make pulp come clean, assure improved formation.



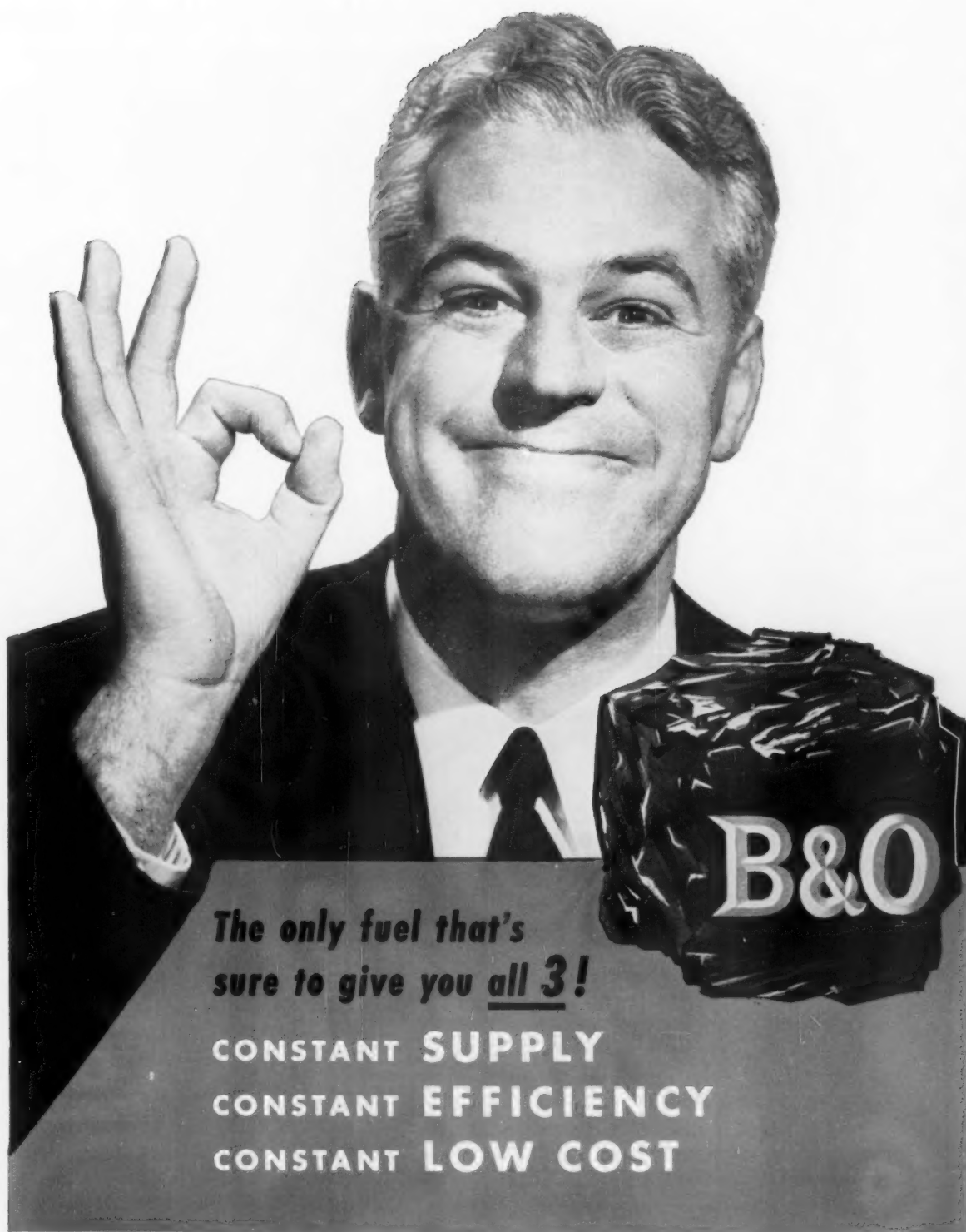
Double Disc Refiners for complete, uniform fiberizing and dispersal.



Pressafiners—efficient in liquor recovery, preliminary fiberizing and mild steaming.



Pump-Through Refiners for stock preparation, hydration and freeness control.



*The only fuel that's  
sure to give you all 3!*

**CONSTANT SUPPLY**  
**CONSTANT EFFICIENCY**  
**CONSTANT LOW COST**



**BITUMINOUS COALS FOR EVERY PURPOSE**

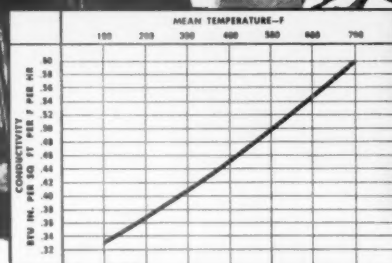
*Ask our Man!* BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD. Phone LExington 9-0400

In developing THERMOBESTOS Insulation

J-M  
at



**Not damaged by water.** Thermobestos has the moisture resistance outdoor service demands. Soak it in water for one day or 365—and you can still walk on it without damage. Dry it out and Thermobestos is as good as new, with conductivity and structural strength unimpaired.



**Low Conductivity.** The low thermal conductivity of Thermobestos is best demonstrated in actual service where it makes possible accurate, uniform temperature control, helps reduce fuel costs and contributes materially to operating efficiency.

**Johns-Manville**



for outdoor process industry applications

# research scientists didn't stop top insulating effectiveness...



*They added the three physical  
properties you most wanted—  
HIGH STRENGTH—LIGHT WEIGHT  
—MOISTURE RESISTANCE!*

Thermobestos® offers the lowest k factor of all insulations in general use throughout the process industries. For maximum heat control on outdoor piping and equipment operating at temperatures to 1200F it just can't be beat!

Yet top insulating effectiveness is only one reason why more and more engineers are specifying Thermobestos for refineries, chemical plants, and wherever hot outdoor vessels and piping must be insulated. For Thermobestos also offers a threefold bonus . . .

#### **. . . Three outstanding physical properties**

Thermobestos is 1) strong and rigid. Its hard composition resists crushing and easily withstands unusual service abuse. Yet it is 2) lightweight for easy handling and fast application. And it is 3) highly moisture resistant, remains

undamaged even by prolonged wetting.

#### **Quickly, easily applied**

Thermobestos is made from hydrous calcium silicate . . . molded to size for proper fit. Its high strength makes it particularly adaptable for time-saving shop prefabrication of fittings and bends.

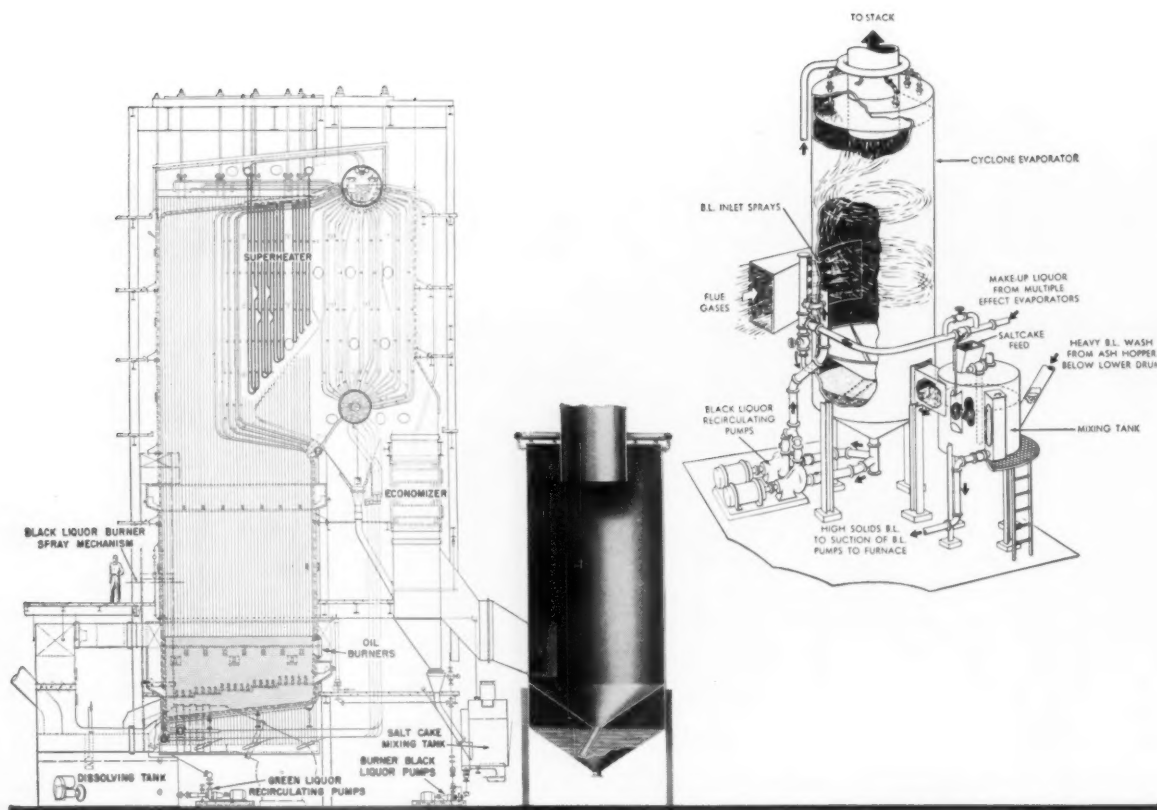
Furnished in large sections, Thermobestos is easy to apply. It reduces the number of joints. In pipe insulation form, it comes in a complete selection of sizes up to 30" O. D. Also available in 6" x 36" and 12" x 36" blocks in a full range of thicknesses.

For further information write for your free copy of the 12-page Thermobestos booklet, IN-169A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

## **INSULATIONS**

**FOR LASTING THERMAL EFFICIENCY  
MATERIALS • ENGINEERING • APPLICATION**





Proved in Use . . . Accepted by Industry . . .

## B&W Cyclone Evaporator Improves Recovery System at Low Cost

The Cyclone Evaporator, an exclusive B&W development introduced in 1946, has received wide acceptance in the kraft pulp industry. Dependable, efficient performance has proved this unit a superior contact evaporator for service in the recovery of heat and chemicals from black liquor.

High availability, no black liquor carryover, low maintenance, absence of moving parts, and low capital cost have contributed to the selection of the Cyclone Evaporator for recovery units sized between 66 and 550 tons operating capacity. The simplicity of the design makes possible great flexibility of equipment arrangement. The Cyclone Evaporator may also be arranged for outdoor installation, thereby reducing building costs.

B&W Cyclone Evaporators utilize the heat in the flue gases to concentrate liquor solids prior to burning in the furnace. Hot flue gases enter the Cyclone tangentially at high velocity to establish the cyclonic

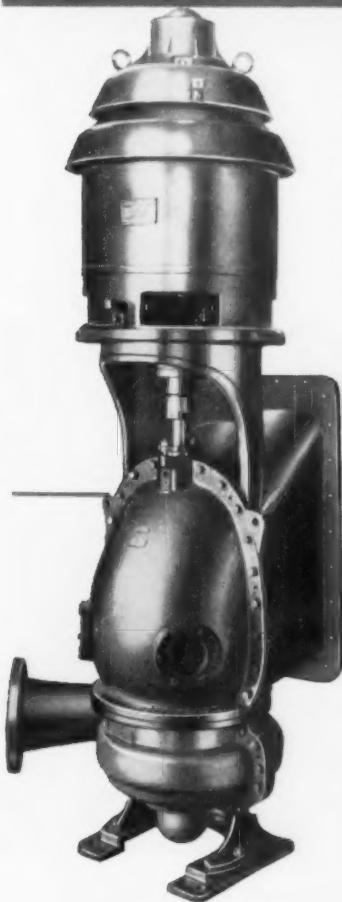
action. Black liquor is introduced at the tangential inlet. Additional liquor is recirculated to wall wash nozzles, located at the top of the Cyclone, to continuously wash the inner walls of droplets of liquor thrown against them by cyclone action of the gas and liquor. The collected liquor droplets flow by gravity to the integral sump for recirculation.

Dependable, continuous service is essential in all parts of a recovery unit. B&W Recovery Units, with B&W Cyclone Evaporators, have proved their value for efficient chemical and heat recovery with low-cost operation. The Babcock & Wilcox Company, Boiler Division, 161 East 42 Street, New York 17, N. Y. P-808



THE  
**Bingham**  
"PULP HOG"  
FOR DECKER, WASHER  
OR THICKENER

**A STOCK PUMP  
THAT CANNOT  
BE AIR-BOUND!**



- HANDLES AIR-ENTRAINED PULP
- DISCHARGES PULP AT CONSTANT RATE
- UNINTERRUPTED FLOW INCREASES PRODUCTION
- RELIABLE PERFORMANCE UNDER ALL CONDITIONS

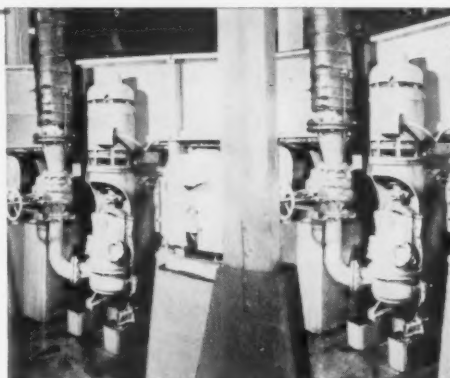
The patented Bingham Pulp Hog has been developed particularly for pumping stock containing large volumes of entrained air. This specially-designed pump takes stock from the doctor blades of Deckers, Washers, and Thickeners, and pumps it — without becoming air-bound or clogged — directly into mill system.

The Bingham Pulp Hog is characterized by a large suction opening and non-clogging im-

PELLER OF THE TOP SUCTION TYPE. Impellers are specially designed to efficiently handle both high and low consistency stock.

Bingham Pulp Hogs have records of dependable performance in major pulp and paper mills throughout the world. For more information call your nearest Bingham office or write for Bulletin No. 26.

- Permits installation at convenient locations in mill flow line.
- Permits use of available floor space regardless of location of storage chest or other equipment.
- Operates successfully in basements or on any floor level.
- Eliminates need for dump chests.
- Substantially reduces building costs.
- Reduces operating heads, resulting in power savings.



Bingham Pulp Hogs taking stock directly from Doctor Blades of Deckers, Weyerhaeuser Pulp Mill, Longview, Washington.

**Bingham**  
SINCE 1921

BINGHAM PUMP COMPANY

General Offices: 2800 N.W. Front Avenue, Portland 10, Oregon

Factories: Portland, Ore. • Vancouver, B.C., Canada

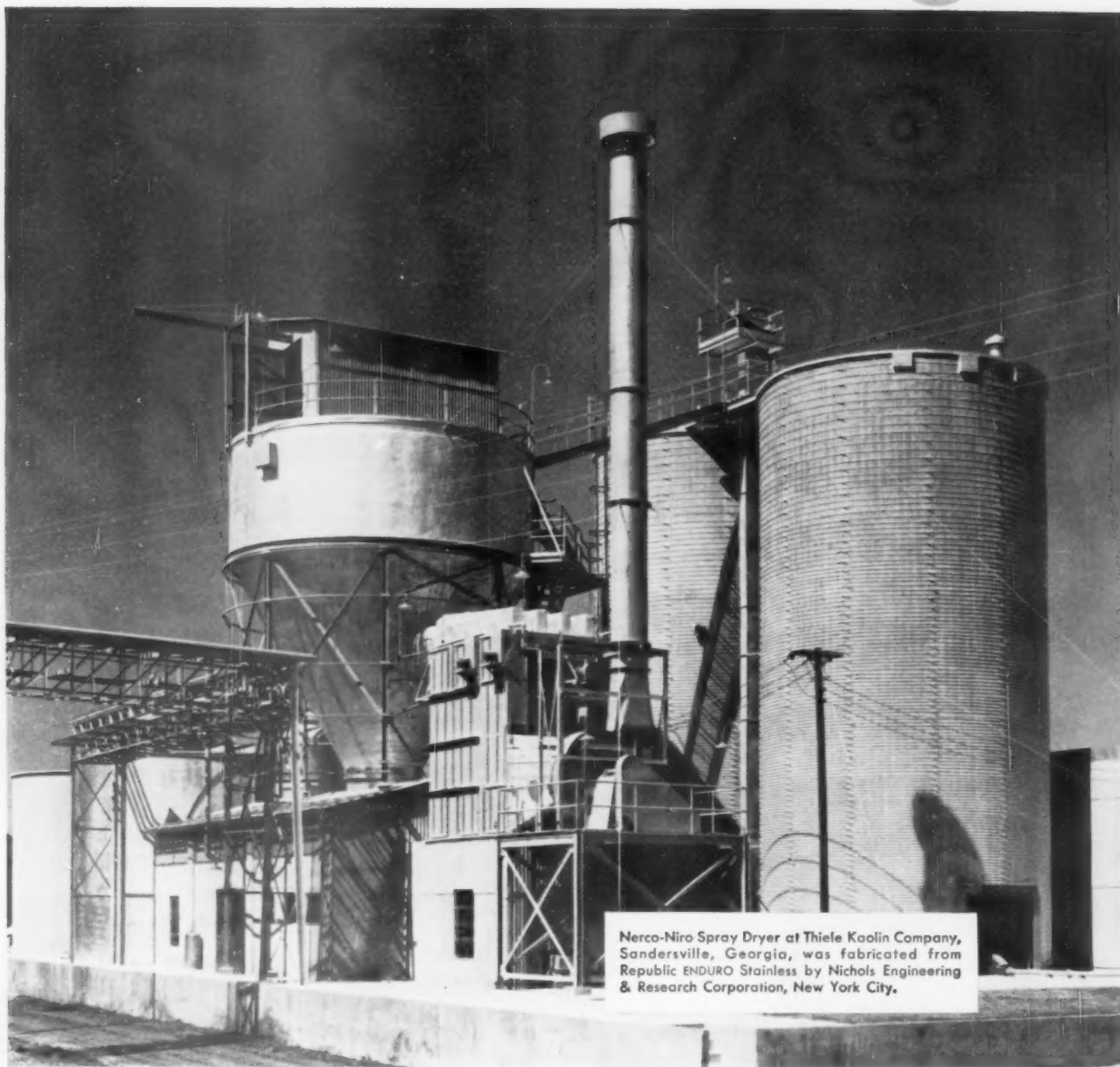


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NEW ORLEANS, LA.	TORONTO, ONT., CAN.
	VANCOUVER, B. C., CAN.



# Spray Drying in



Nerco-Niro Spray Dryer at Thiele Kaolin Company, Sandersville, Georgia, was fabricated from Republic ENDURO Stainless by Nichols Engineering & Research Corporation, New York City.

## REPUBLIC



*World's Widest Range of Standard Steels*

# STAINLESS STEEL

## protects quality and purity of Kaolin paper coating clays

Demand for paper coating clays from Georgia's famous Kaolin Hills is growing at a rapid rate. Used in formulas for conversion and machine-coated papers, last year's consumption was over 500,000 tons and is expected to reach 1,000,000 tons by 1960.

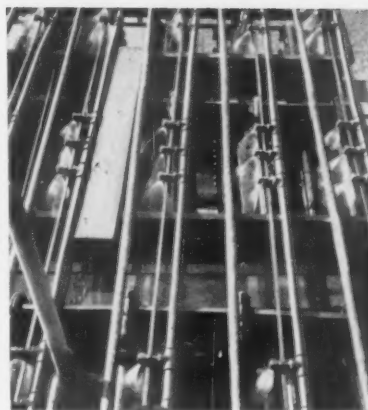
Kaolin producers are utilizing the advantages of processing equipment fabricated from Republic ENDURO Stainless Steel, to keep up with demand and to maintain high product quality and purity.

A good example of this type of equipment is the cone-shaped spray dryer shown at left. A cake clay slurry containing about 40% moisture is pumped into the dryer, where it is flash dried in about a second. The resulting product, ready for bagged or hopper-car shipment, contains less than 1% moisture. And, because it is never over-dried or calcined, and comes in contact only with stainless steel, its quality and purity are maintained at the highest level.

There is no danger of metallic contamination. ENDURO Stainless Steel is inert to most chemicals and chemical compounds. It does not add unwanted elements to products. It never takes anything away. ENDURO is easy to clean and keep clean because it's solid stainless steel. There's no applied surface to crack, chip, peel or wear away. Its smooth, hard, sanitary surface offers little foothold for contaminants.

Strength, heat-resistance and corrosion-resistance are other advantages of ENDURO-made processing equipment like the dryers mentioned above. These units, designed to operate at temperatures from 1000-1150°F, are made in thinner, lighter sections because of ENDURO's extremely high strength-to-weight ratio. They resist scaling at high temperatures. Possess high creep strength. Provide substantial savings in both maintenance and replacement costs.

These benefits can be applied to your paper-making equipment. Republic field metallurgists are ready to work with you and your equipment supplier in applying the many available Republic ENDURO Stainless Steel analyses to best advantage. No obligation. Just mail the coupon.



**PROTECT PROCESS AND WASTE LINES** from corrosive damage by installing Republic SRK corrosion-resistant plastic pipe. When used within its temperature and pressure limitations it is ideal for many applications in paper, chemical and other processing industries. It is highly resistant to most corrosive liquids and gases. Being extremely tough, it will absorb terrific punishment without breaking or shattering. Republic SRK is lightweight, easy to handle. Lengths are joined by simple solvent-welded sleeve-type fittings. Send coupon for details.



**PROTECT ELECTRICAL SYSTEMS** against the corrosive action of chemical fumes with Republic Dekoron®-Coated Electrical Metallic Tubing. This installation of Dekoron-Coated E.M.T. replaced ordinary conduit that corroded out every five years. This easily installed electrical raceway gives you the double protection of a polyethylene coating over a galvanized finish. Moisture-tight, corrosion-protected joints are made by wrapping the threadless connectors and couplings with plastic tape. Send coupon for Booklet DEK-3.

# STEEL

*and Steel Products*

**REPUBLIC STEEL CORPORATION**  
Dept. C-3585R  
3206 East 45th Street, Cleveland 27, Ohio

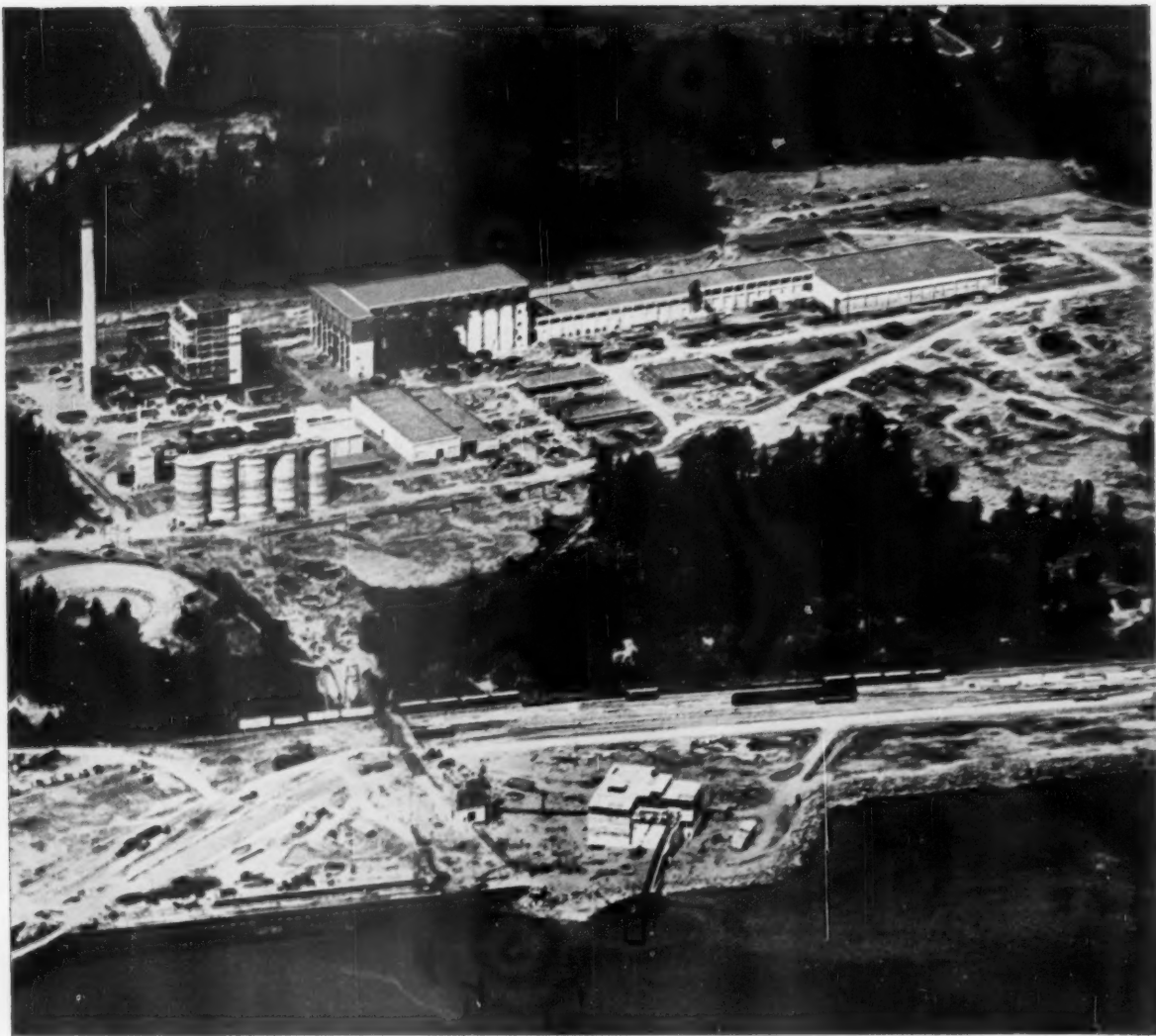
☐ Please have a stainless steel metallurgist call.  
Send more information on:  
☐ ENDURO® Stainless Steel    ☐ SRK Plastic Pipe  
☐ Dekoron-Coated E.M.T.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



*Coming soon from this mill...  
a brand new, uniform pulp...*

**CROFTON  
KRAFT**

Within weeks, papermakers will have access to a brand new bleached Kraft market pulp, uniform in quality and workability. Brightnesses in the 88-90 range will make this new pulp suitable for the best grades of paper.

To make such a pulp possible, British Columbia Forest Products Limited has erected this 425-ton-per-day mill at Crofton, British Columbia, on the southeast coast of Vancouver Island. Now nearing completion, this \$38,000,000 plant will be in full operation within a very short time. All major equipment has been installed and final process installation is now in full

swing. Production will begin on or about Nov. 1, 1957.

Mead Pulp Sales, Inc. will be the exclusive distributor of Crofton Kraft. We suggest that if you are contemplating using Crofton Kraft in your operation, you contact us immediately. We shall be happy to give you full information and samples of this outstanding new pulp.

**MEAD PULP SALES, INC.**  
*Distributors of Wood Pulp*

Bleached and Unbleached Chemical and Mechanical Wood Pulp

230 Park Avenue, New York 17 • 20 North Wacker Drive, Chicago 6 • 118 West First Street, Dayton 2  
1504 Sherbrooke Street, West, Montreal Canada

**MEAD**  
*pulp*





***you can reprocess the "broke"...***  
***...but the time is lost forever***


Back to the beaters goes the "broke" caused by a break in the paper web, and nothing is lost . . . nothing but TIME, that precious element of production. The time spent in carrying the paper making process to the point at which the break occurred, the time spent in clearing the machine, in cutting another tail and in correcting the cause of the break is lost . . . forever. The only cure for lost time is prevention, and a step in the right direction is standardization on Stowe-Woodward rubber covered rolls, developed and built by experts in increasing production and reducing paper machine down-time.

Complete roll processing plants at:  
 NEWTON UPPER FALLS, MASS.  
 NEENAH, WISCONSIN  
 GRIFFIN, GEORGIA

**STOWE-WOODWARD, Inc.**

*Craftsmen in rubber*

**RUBBER ROLLS with a REPUTATION**



# EFFICIENCY—

**another reason why  
"BUFFALO" pumps  
cost less to run**

With the multitude of pumps in a paper mill, efficient operation can mean a substantial improvement in over-all operating efficiency.

Thanks to "Buffalo" design, you get the highest possible efficiency in non-clogging pumps. "Buffalo" enclosed impellers are inherently efficient *without* close clearances. Thus, wear and wedging do not occur with high consistency stocks — they flow thru the pump as easily as thru pipe. You enjoy year-after-year power savings, plus the savings of continuous trouble-free operation. This has proven-out over many years in hundreds of major installations.

"Buffalo" builds a complete line of single and double suction pumps, each tailored to a specific service. Whatever the consistency, the head, the desired volume of flow or corrosive nature of your stock, you can match a "Buffalo" Paper Stock Pump to the job with full confidence of best results.

**WRITE FOR BULLETIN 953-J TODAY!**



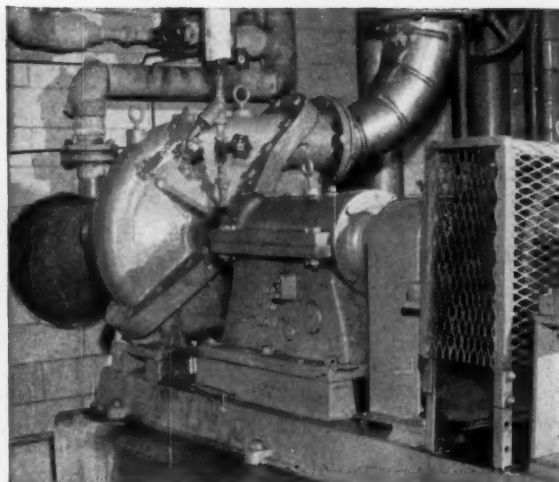
## **BUFFALO PUMPS**

Division of Buffalo Forge Co.  
220 Mortimer St. • Buffalo, N. Y.

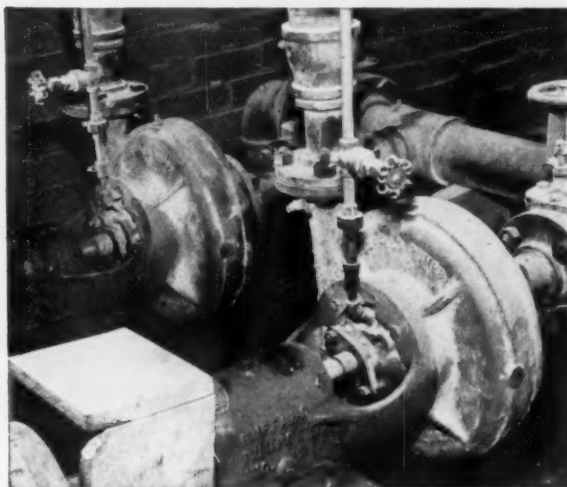
Canada Pumps, Ltd., Kitchener, Ont.

*Sales Representatives in all Principal Cities*

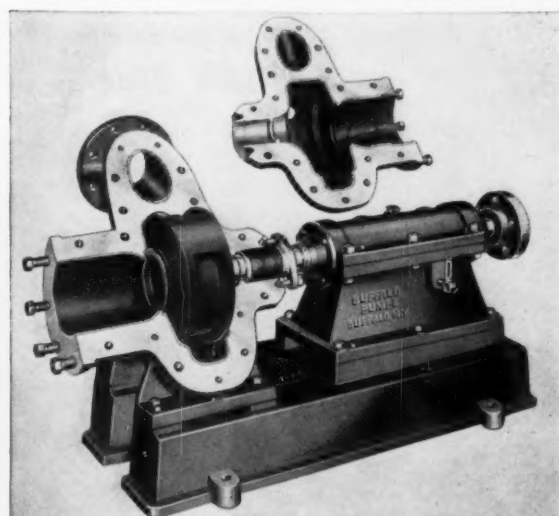
**A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID**



*Handling stock at 4½% consistency, this "Buffalo" Diagonally Split-Shell Pump delivers efficiently day in and day out.*



*"Buffalo" Full Ball Bearing Pumps on circulation and agitation service at a large mill, still efficient after many years on the job.*



*Upper half of casing of "Buffalo" Diagonally Split-Shell Pump removed, showing full shrouded impeller, which does not depend on close running tolerances for its high efficiency.*

# Only the Best goes into Puget Pulp

A quality end-product in any manufacturing process is the result of a combination of long experience, fine raw materials and modern equipment. All these are used in the making of Puget Pulp. Those are among the reasons why converters prefer the superior attributes of Puget Pulp.

**PUGET SOUND**  
**PULP AND TIMBER CO.**  
B E L L I N G H A M , W A S H I N G T O N



*now!*

*new low price*  
.....

**CYANAMID'S**  
**PAREZ<sup>®</sup> 607**

*melamine*  
*wet-strength*  
*resin*

Start planning on expanded applications of PAREZ Resin 607 in your mill. At this new low price you can count on the *best* wet-strength quality in tissues, papers and boards at costs lower than ever before.

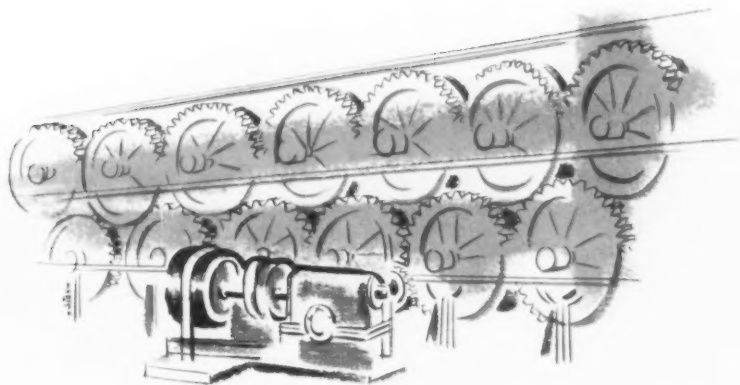
Manufacturers of wet-strength papers—and those who are planning to add the sales-plus of wet strength to their paper line—will find that the unequalled performance of PAREZ Resin 607 is now more than ever their best investment.

Your Paper Chemicals representative has the facts and figures—but the savings will be yours!

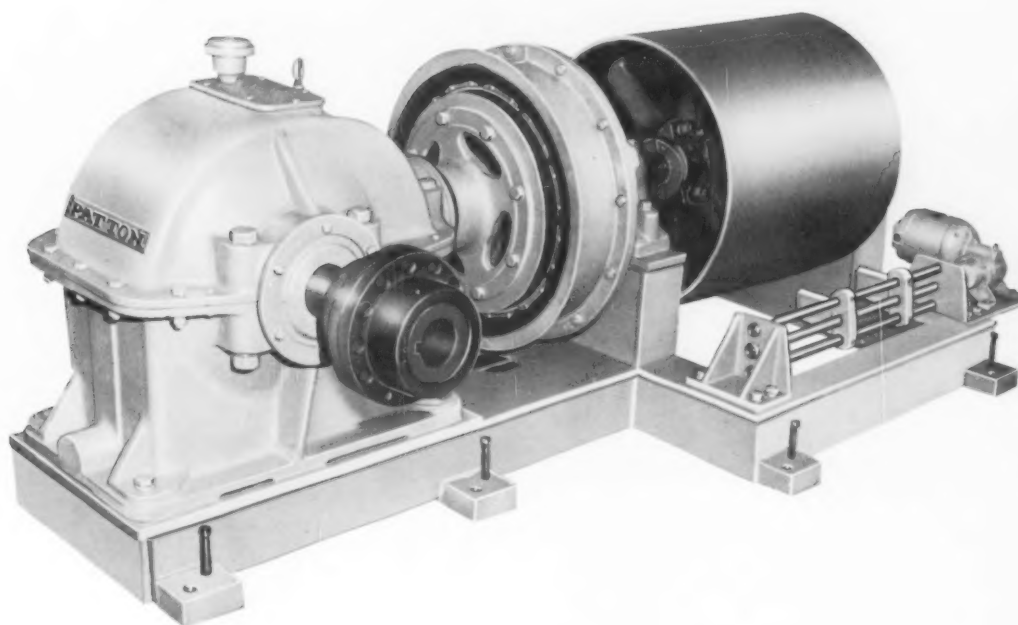
**CYANAMID**

AMERICAN CYANAMID COMPANY  
PAPER CHEMICALS DEPARTMENT  
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IN CANADA: NORTH AMERICAN CYANAMID LIMITED, TORONTO AND MONTREAL



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by **PATTON**

THE PATTON MANUFACTURING CO., INC. • SPRINGFIELD, OHIO  
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## converting your own starch?



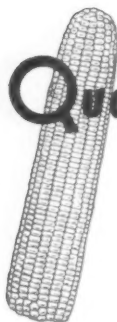
## use *Clinton*<sup>®</sup> starches

You'll like the results when you use Clinton's 3011 and 3021 starches for enzyme conversion. They're always uniform . . . always the *same* high quality.

Use them for sizing . . . 3011 and 3021 convert uniformly to give you the desired penetration . . . increased strength . . . better printing surface. Since they convert well at high solids levels they give efficient coating . . . from application to drying. And, you can count on Clinton enzyme conversion starches for economy, too.

Count on Clinton's technicians, too, for help and advice with your paper making problems. They have the "know-how" of over 30 years experience . . . and it's all yours, just for the asking.

. . . and remember : technical service in connection  
: with your specific problems is  
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CLINTON CORN PROCESSING COMPANY

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*Our 50th Anniversary Year 1907-1957*



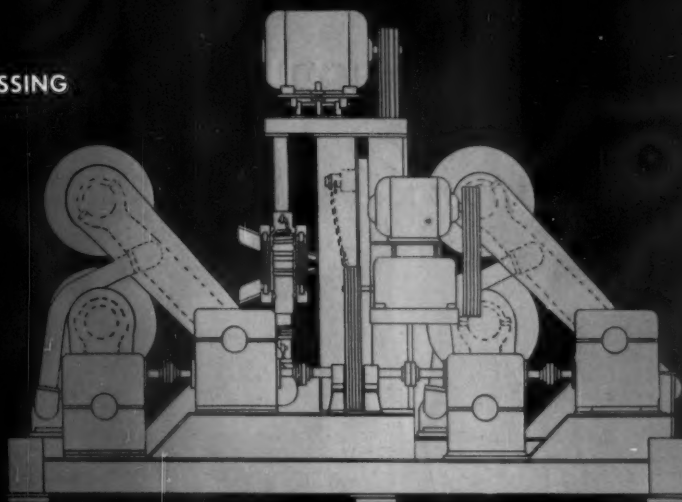
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★ COMPLETELY AUTOMATIC

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★ HARDWOOD OR SOFTWOOD,  
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★ RUGGED, DEPENDABLE, PROVEN



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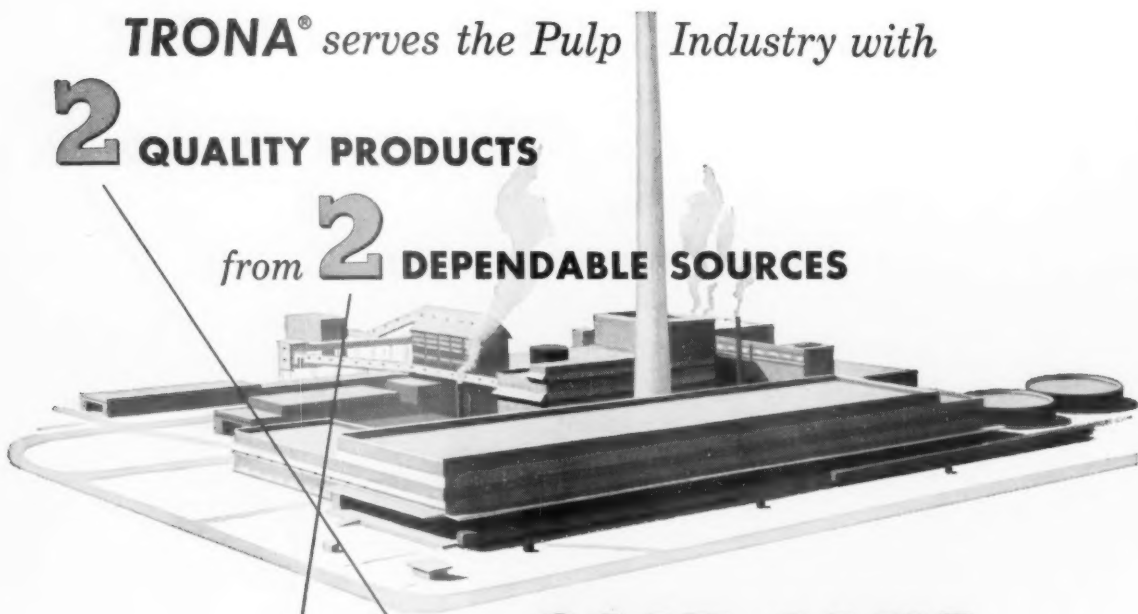
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In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec

TRONA® serves the Pulp Industry with

**2** QUALITY PRODUCTS

from **2** DEPENDABLE SOURCES



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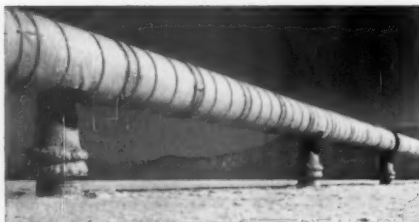
OF HIGHEST PURITY

**SODIUM CHLORATE**

FOR CHLORINE DIOXIDE BLEACH

**SEARLES LAKE**  
at Trona, California.

Source of natural  
sodium sulphate,  
essential for  
quality kraft  
production



**HENDERSON,  
NEVADA.**

Source  
of  $\text{NaClO}_3$  for the  
SOLVAY high-stage  
chlorine dioxide pulp  
bleaching process.



Add another step forward in American Potash & Chemical Corporation's continuing diversification program! Trona has long been the leading source of *natural* sodium sulphate ( $\text{Na}_2\text{SO}_4$ ) from the brines of Searles Lake, so essential in quality kraft production. Now from American Potash & Chemical Corporation (Nevada) (formerly Western Electrochemical Company) Trona serves the industry with highest purity sodium chlorate, used extensively in the SOLVAY high-stage chlorine dioxide pulp bleaching process. Two dependable sources, two quality products—a combination that can't be beat!

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Producers of: Borax • Potash • Soda Ash • Salt Cake • Lithium  
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diversified line of specialized agricultural and refrigerant chemicals



Plants: TRONA and LOS ANGELES, CALIFORNIA  
HENDERSON, NEVADA  
(American Potash & Chemical Corporation (Nevada))  
SAN ANTONIO, TEXAS (American Lithium Chemicals, Inc.)



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The complete Dynamatic power package includes all components required to provide infinitely adjustable speeds from an alternating current power source. A Dynamatic Ajusto-Spede® or Dynaspede® Drive, with electronic control and pushbutton station, satisfies the requirements of almost any application where proper machine operation or material processing depends upon control of operating speeds.

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Ajusto-Spede® Drives, available in ratings of  $\frac{1}{4}$  horsepower to 75 horsepower, are air-cooled. Dynaspede® Drives, rated from 3 to 75 horsepower, are liquid-cooled. Raise your productive efficiency with Dynamatic eddy-current units.

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## Pacific Coast . . .

### Memo from LHB . . .

Outdoors writers, in national convention at Hoquiam, visited Weyerhaeuser's Grays Harbor Pulp Div., were received by Mgr. J. C. BROWN and Dr. HAROLD BIALKOWSKY, pulp research director, who showed the group how pollution of receiving waters by spent sulfite liquors has been almost completely eliminated . . . Two Weyerhaeuser men were Europe bound—PAUL HARKONEN, asst. to adv. mgr., visiting Finland; SAMUEL H. BROWN, mgr. of public education & recreation activities, vacationing in Scotland . . . GEORGE S. LONG JR., Weyerhaeuser corporation secretary, accepts appointment as member of Washington governor's safety advisory committee. . . . MERTON M. MILLER becomes assistant shipping supervisor at CZ St. Helens mill . . . J. D. CUMMINGS, plant supt. of CZ converting at San Leandro, to Los Angeles converting plant supt. . . . ROBERT LORENZ, production planning supervisor of CZ San Leandro converting, to production planning supervisor of converting at Antioch . . . R. L. TRIEMAN, formerly of CZ San Leandro converting, to supt.—towel and tissue converting, Antioch . . . B. O. REESE, yard foreman, promoted to yard supt. CZ Camas . . . W. L. BANKHEAD, supervisor at San Leandro converting, transfers to CZ Los Angeles con-

verting as supervisor—warehouse, electrical, shipping and receiving depts. . . .

Mrs. VERA W. BERNEY, women's personnel supervisor, CZ Camas, participated as member of panel discussing "Changing Work Opportunities for Women" at Montana State College conference aiming at better utilization of women's skills in employment . . . DEAN T. CALLAHAN promoted to resident engineer of CZ's Clackamas woods operations, succeeding WILLIS G. CORBITT, retired . . . RICHARD D. SCHIMEL advances from compassman to forester at CZ Columbia Tree Farm. . . .

FRANK WHITNEY, formerly spe-

cialty bag & finishing foreman at Camas, took over as asst. converting plant supervisor July 1 at CZ St. Helens mill and JAMES M. BUTTERICK returned San Leandro plant to Camas as specialty bag and finishing foreman . . . MELVIN L. WINGROVE, asst. to paper mill supt. (tissue) at Camas, transfers to CZ Antioch as supt. of tissue & towel machines. . . .

FRANK J. LYMAN promoted to quality control chemist-technical control at CZ St. Helens to replace LEONARD B. ZURCHER who became technical asst. to the asst. paper machine supt. . . . STEPHEN J. HALL, vice pres. Simpson Timber Co., Seattle, as keynote speaker at Oregon Governor's seventh industrial safety conference, pointed out that management has the legal responsibility for industrial safety, but labor and management share moral responsibility. . . .

STANLEY S. TAYLOR, founder and president, advances to board chairman of the Honolulu Paper Co. . . . O. C. MAJORS, vice pres.—dir. of sales, Fibreboard Paper Products Corp., San Francisco, is new chairman of the Special Food Board Group of National Paperboard Assn. A graduate of the U. of California, Mr. Majors joined Fibreboard Products, Inc. in 1927. . . . The Burhans-Sharpe Co., engineering representatives, Seattle, Wash. (1731 First Ave. S., Seattle 4), opened a branch office in Portland, Ore. July 1 headed by R. B. BRUNING. For past 10 years he has been associated with Crown Z's West Linn mill where he was division lubrication engineer. Lines handled by Burhans-Sharpe include Mixing Equipment Co. "Lignin" mixers and Henry Pratt Co. continuous starch cookers. . . .

LYLE R. KOROCH is new sales engineer for Bristol Co. with headquarters in re-



### Cotton, Climate, Copper, Citrus and Now Chips . . .

There are now five "C's" in Arizona's economy, with the Coconino ground-wood mill at Flagstaff and others in talk stage. So there is new impetus for educating Arizona's public in fire prevention. New fire poster prepared by the American Forest Products Industries, Inc., is receiving attention above from (l. to r.) Governor ERNEST W. MCFARLAND, honorary chairman; E. L. QUIRK, Southwest Lumber Mills, Inc., Flagstaff (which has long term pulp mill plans), chairman; and JACK WILLIAMS, mayor of Phoenix.

cently-opened sales office at 2210 N. W. Roosevelt Ave., Portland, Ore. A native of Portland, Mr. Koroch graduated from Oregon State College in 1951 . . . FRANK LEMMA, sales engineer of Northwest Copper Works, resumed duties following five weeks siege of hepatitis . . . Johnson & Johnson, Chicago engineers-architects in forest products opened a West Coast branch July 1, according to Pres. J. H. JOHNSON. The branch at 5441 E. Beverly Boulevard, Los Angeles, is headed by Vice Pres. DONALD H. GRUGEL . . .

Since coming to San Francisco to work under RAY P. WEYER, Pacific Coast manager, Carpenter Steel Co., Alloy Tube Div., HARRY L. HARNER, has been active as representative in the Pacific Northwest pulp and paper industry. He replaced HARRY HAUSER, who was promoted to regional sales manager at Pittsburgh . . . R. W. CLARKE, for past several years vice president of Goulds Pumps Western, Inc., Portland, Ore., died July 2 . . .

ALLAN HYER, vice pres. of Black-Clawson Co., recently visited the company's West Coast sales office at Portland . . . earlier, DON MONTVILLE, sales mgr. of Shurtle Div of Black-Clawson, "looked in" on new installations and friends on the Pacific Coast . . . DON A. PROUDFOOT, head of acoustical sales since '47, becomes marketing director of Simpson Timber Co.'s central research dept. in Seattle . . . F. C. ROCKEFELLER, of Simpson Logging Co.'s Portland branch, has been named comptroller for the company, according to C. H. BACON JR., vice pres. gen. mgr. . .



**Vic Haner (left) Promoted to V.P. and Res. Mgr. of Ketchikan Pulp Co.**

. . . he has been resident mgr. since startup of the mill in 1954. Born in Bellingham, Wash., and a graduate of the U. of Washington, he helped build Puget Pulp's first two units, assisted in planning and design of the Ketchikan, Alaska, mill.

**Dr. Robert B. Brown Becomes V.P. Technical Sales at Ketchikan . . .**

. . . native of Dayton, O., Dr. Brown has b.s. from Miami U. in Ohio, m.s. from Princeton and ph.d. from Iowa State. He was with Rayonier's predecessor company at Shelton, Wash., and continued with Rayonier before joining Ketchikan as technical consultant in 1954.

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1700 Caniff, Dept. Y-18 Detroit 11, Michigan

How can we stop corrosion?

Name \_\_\_\_\_

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## "We Stopped Corrosion at our Plant!"



**"Corrosion was rampant inside and out before Truscon diagnosed our troubles and prescribed TRUSCON CHEMFAST, corrosion and chemical resistant coating with Devran (epoxy resin)."**

● If you have *any* corrosion at your plant, stop it *now* before replacement costs eat gaping holes in your profits! Send coupon above—take advantage of Truscon experience and knowhow.

*Chemfast* is a heavy-duty coating for protecting indoor and outdoor surfaces of wood, metal and masonry against moisture, acids and alkalis. It owes its toughness to Devran (epoxy resin).



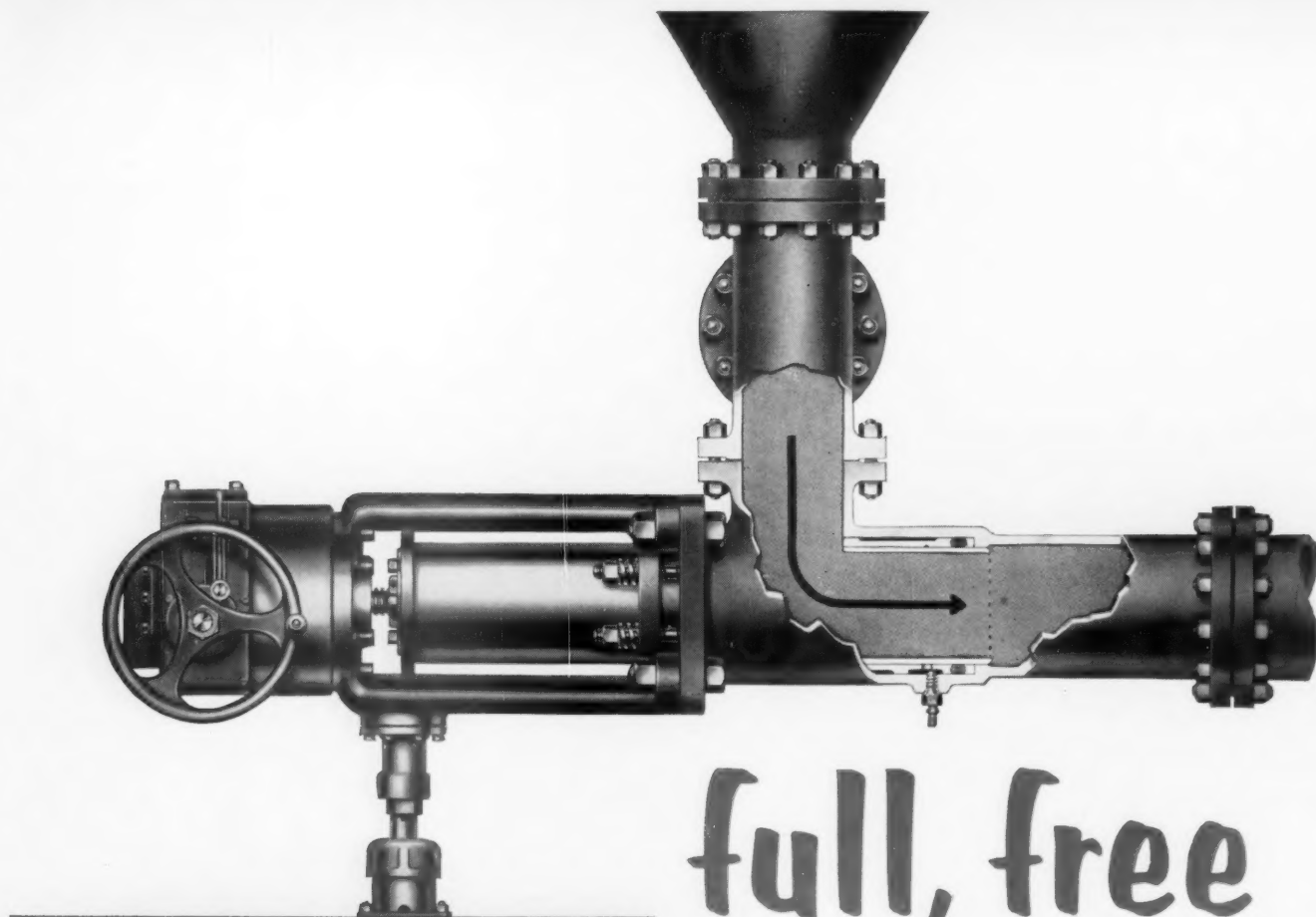
**MADE WITH DEVRAN—  
IT'S TOUGHER,  
MORE RESILIENT  
THAN A GOLF BALL.**

**CHOICE OF ATTRACTIVE,  
EYE-PLEASING COLORS**

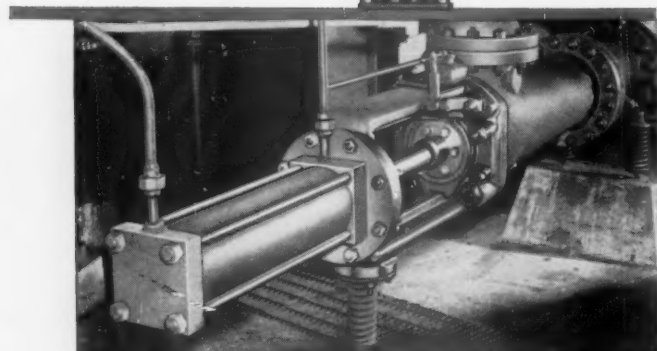
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Industrial Maintenance Division of  
Devco & Reynolds Co., Inc.

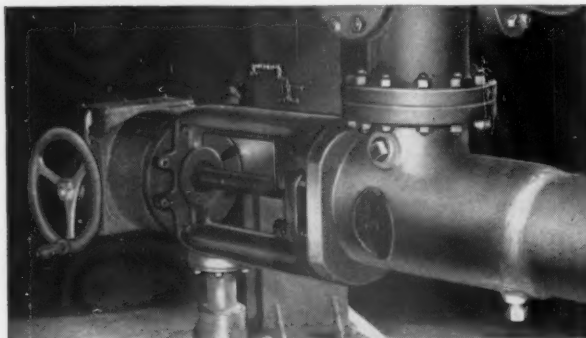
Laboratories



## full, free digester discharge



**HYDRAULIC-OPERATED** Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



**MOTOR-OPERATED** Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

Digesters blow fast and clean with YARWAY Seatless Blow Valves.

The hollow sliding plunger has no pockets where wood chips or tramp materials can hang up.

*All Yarway Digester Valves have full pipe area, permitting fast discharge with minimum pressure drop. Comparisons show more discharge area . . . reducing blowing time, increasing number of cooks.*

Scores of pulp mills report *lower operating costs and increased production* due to YARWAY Digester Blow Valves. One large mill found *savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!*

YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

### YARNALL-WARING COMPANY

103 Mermaid Avenue, Philadelphia 19, Pa.

BRANCH OFFICES IN PRINCIPAL CITIES



## DIGESTER BLOW VALVES





From left, seated: HARVEY, HOLZER, TRUE. Standing: KUEFNER, BARTON, SMITH, NELSON.

### Organize New TAPPI Division in California

Chairman of the July 18 meeting in San Francisco was W. F. HOLZER, Crown Zellerbach Corp. The group will be a division of the Pacific Coast section of TAPPI and is named the Golden Gate division. R. M. TRUE, General Aniline & Film Corp., was instrumental in getting the steering committee organized. HAROLD H. HARVEY, Penick & Ford Ltd., Inc., San Francisco, was elected secretary-treasurer pro-tem.

A nominating committee to name candidates for the executive committee and a program committee were appointed. First general meeting is set for Oct. 8. It was reported that there are some 90 members of TAPPI in northern California, the area covered by the Golden Gate Division.

WAYNE H. KUEFNER, The Flintkote Co.; DR. JOHN S. BARTON, Western Waxide Division, CZ Corp.; L. K. SMITH, PULP & PAPER; and T. J. NELSON, California & Hawaiian Sugar Refining Corp., were others present at the founding session.



### A 40 Year Award . . .

Crown Z Vice Pres. E. P. Stamm (left) presents it to Purchasing Supervisor Merritt W. Wilson at dinner honoring 136 West Linn Div. employees completing 5 to 45 years with CZ. Res. Mgr. Malcolm J. Otis, center, at head table.

RALPH P. ABERCROMBIE, vice pres. Cheney-Bigelow Wire Works, Springfield, Mass., made a six-week tour of western mills with WALTER SALMONSON, West Coast representative . . . JERRY WILLINS, supt. Weyerhaeuser's Everett kraft pulp mill, took family and house trailer on Calif. vacation to Disneyland, there meeting JACK REACH, assoc. research dir., Weyer. Pulp Div., Everett, and family . . . DR. LOWELL P. EDDY leaves Puget Sound Pulp & Timber Co. research dept. to become member of Western Washington College of Education staff . . . GORDON CURZON, of research lab, and HARRY PAGELS, of timekeeping dept., are co-editors of "Puget Parade", Puget Sound Pulp's recently-founded house organ. . .

## "From ingot to fourdrinier wire"



### ANNEALING THE WIRES

Just as one alloy differs from another, so do their individual requirements for annealing vary. A definite ratio of speed and temperature must be used for each type. Skilled employees, tending our modern annealing furnaces, adhere faithfully to the proper speed-heat formulae so that your Eastwood wire will have the longest possible life.

Because the Eastwood-Nealley plant is a completely integrated one, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are truly ours—"from ingot to fourdrinier wire".

**EASTWOOD-NEALEY CORPORATION**  
Belleville, N. J.

## PULP & PAPER

## Strictly Personal

MAURICE BURKE, senior industrial engr. at CZ Camas, transfers to San Francisco headquarters as assistant in organization planning . . . CZ's San Leandro Converting grocery bag dept. completed 3 yrs. without disabling accident and received a safety certificate awarded by H. H. WYMORE, manager-director converted papers . . . HARRY GARDISER, senior industrial engineer, promoted to plant engineer at Western-Waxide, San Leandro . . . CLARENCE A. RACINE, formerly head

filer at Cathlamet, Wash., operations, promoted to foreman of CZ's Deep River, Ore., chipping plant . . . R. H. CARRIER advanced from systems analyst to supervisor in systems and procedures at CZ San Francisco headquarters . . . C. D. OLIVER, assist. converting plant supervisor at St. Helens, moves to Antioch as grocery bag dept. supervisor for CZ . . .

EARL F. ANDERTON, former manager Coos Bay Pulp Corp. at Empire, Ore. has been promoted to assistant to Gen. Mgr.



Winner of Low Gross . . .

. . . golf prize is Arthur Weaver (right), assistant secy.-treas. in charge of sales and administration, Potlatch Forests, Pomona, Calif., at Paper Mill Men's Club tournament in Los Angeles. Donor is Fred Wolters (right), Johnson, Carvell & Murphy, tournament chairman. Several score golfers turned out. Jack Enders, Reynolds Metals, won low net prize, flight 1, Richard C. Ungerland, Graham Paper Co., low net, 2nd flight, and Reuben Coatsworth Potlatch, won special sportsmanship prize as "the best general sport."

LOREN V. FORMAN at Scott's Everett plant; ROBERT E. MARCH, former assistant mgr. for Services, Scott Paper Co., Chester, Pa., succeeds as Coos Bay mgr. . . .

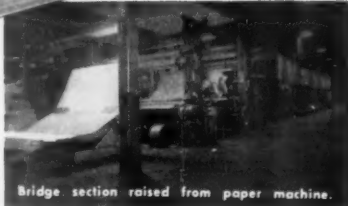


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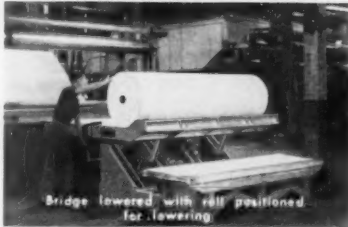
No bending or breaking of winder shafts when you use MURCO Hydraulic Roll Lowering Table to transfer paper, as the winder shaft is never used as a lifting arbor. The use of the MURCO Hydraulic Roll Lowering Table eliminates complicated, expensive unloading tables or cumbersome overhead hoist arrangements. Transfer of the finished paper roll becomes a simple and safe operation . . . quick positive, reliable action . . . portable . . . rigid construction. Made in sizes practical for any normal size paper roll, and available in various lengths.

Write today for quotation. Send height from floor to present table . . . length of paper roll . . . diameter for paper roll . . . weight of typical paper roll.

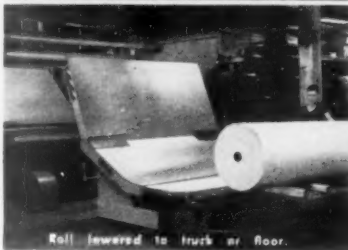
**D. J. MURRAY  
MANUFACTURING CO.**  
*Manufacturers Since 1883*  
WAUSAU, WISCONSIN



Bridge section raised from paper machine.



Bridge lowered with roll positioned for lowering.



Roll lowered to truck or floor.

## Northeast . . .

### Memo from MRC . . .

The time for "fanatical sabbaticals" will soon be "kaput" and September will find most of us back at the desks, bronzed but broke. Meanwhile mills are running along at a pretty fair clip (15.5 million tons of paper by mid-year) and people are making news as usual. . . For instance, LEONARD A. PIERCE, JR., who joined Penobscot Chemical Fibre Co. March, 1956 as asst. to President EUGENE H. CLAPP, has been elected v.p. i/c operations. His hobby is horses (riding, not playing). . . HAMMOND ROBERTSON JR. has signed up with the engineering staff of Finch, Pruyn & Co. Inc. He's a grad of Worcester Polytech with a b.s. in mechanical engineering, is married and has two children. . . ROBERT B. TURK is now technical coordinator in Hammermill Paper Co.'s pulp mill and MAX D. LEAVY is junior electrical engineer in engineering. Bob replaces KARL VOGEL, recently upped to asst. supt. of pulp mill, while Max moves into a newly created job. . .

D. BRUCE OTIS, JR., is taking on the new post of mgr. of public relations for The Black-Clawson Co. Mr. Otis, former editor of *Paper Trade Journal*, will handle press relations and publicity for all B-C divisions. Before his editorial days he sold paper mill equipment for Treadwell Supply Co., Watertown, N.Y. and was instructor of English at Hamilton College and Columbia U. . . .

Fitchburg Paper Co. has a new asst. to personnel director, CAL SHOLL. He's HERBERT S. JONES, most recently with Chance Vought in Texas . . . CARL MAKI has joined Fitchburg to coordinate their IBM installation along with other accounting systems and procedures . . . at Champion-International Co., Lawrence, Mass., JOHN Z. CERYCH, ph.d. (chemistry), is research chemist to investigate new methods and products. Born in Czechoslovakia, he was studying at Charles U. in Prague when the Commies took over, escaped to American zone in Germany, later moved to Holland where he continued his studies at U. of Leiden. After getting his doctor's, he served as research asst. at Leiden State U., as a research fellow at the National Research Corp., Leiden, then came to the U.S. He was recently senior research chemist for Monsanto Chemical Corp. in Everett. He's married, has a two-year old daughter.

RAY DRISCOLL, manager, market research, Keyes Fibre Co., won \$200 award for his entry in the Emerson-Bolton contest, "My Responsibilities to Others



**Frederick B. Schelhorn, Mfg. V.P.  
Mill Div., Owens-Illinois Glass . . .**

. . . was mill coordinator for Mill div., formerly with merged National Container Corp. A native of Philadelphia, Dr. Schelhorn is a graduate of U. of Pennsylvania, has m.s. and ph.d. degrees from Institute of Paper Chemistry.

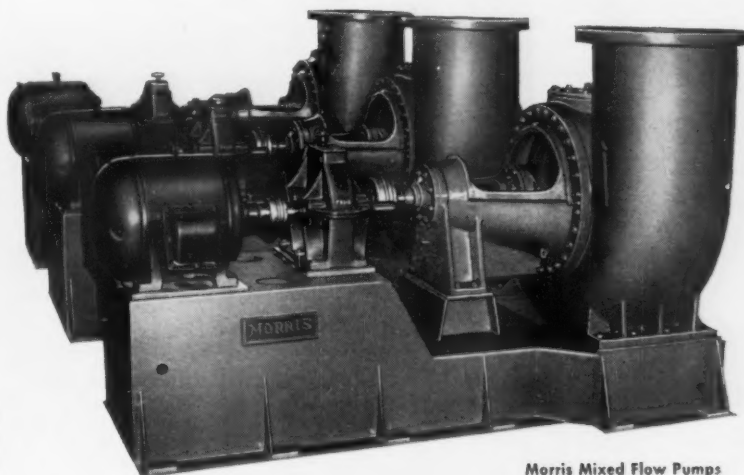


**T. Richard Probst, Vice Pres.  
i/c Operation, Brown Co. . . .**

. . . was vice pres. and mgr. of mills of Eastern Corp., Bangor, Me. He will make his headquarters in Berlin, N.H. Dr Probst graduated from Pennsylvania State College, has m.s. and ph.d. degrees from Institute of Paper Chemistry, and held key posts in Wisconsin and Oregon mills.

## MORRIS . . . Peak Pump Performance and more

**Conservatively Rated Capacities, Plus Margins  
of Safety to Handle Normal Overloads  
in Year 'Round Operation**



Morris Mixed Flow Pumps

### There is a Morris Pump That Suits Your Job Better

**Morris pumps have that built-in margin of safety that  
assures you peak performance in your pumping operation**

Rugged durability permits continuous operation even under the most strenuous working conditions. Modern design and engineering assure freedom from mechanical difficulties. The Morris pump operates with a minimum of attention . . . lowers maintenance costs . . . can be quickly dismantled for inspection . . . avoids lengthy lay-up time. For heavy duty pumping . . . specify Morris.

The vast experience of Morris sales engineers enables them to recommend the Morris Pump best suited for your particular job. For more complete information write today.



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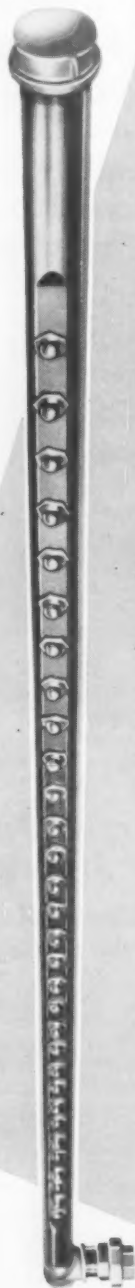
BALDWINVILLE, N. Y.

Sales Offices in Principal Cities



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Here is a shower that you can use on white-water.  
Ask your Loddington man for a demonstration.



LODDING ENGINEERING  
CORPORATION  
WORCESTER • MASS.

in My Company." . . . J. B. COWIE, general sales mgr., Hollingsworth & Whitney Div., Scott Paper Co., is now a director of National Paperboard Assn.

. . . HILBERT RADLOFF, former mill supt., Modena Paper Mills, is now with Baldwinville Paper Products Co., Baldwinville, Mass. . . .

PAUL A. FASOLI who has been with Sandy Hill's engineering dept. for some 11 years, is now with the C. H. Dexter Paper Co. of Windsor Locks, Conn. . . .

WALTON C. ALLEN who has been manager of book paper sales for Crocker-Burbank Papers since 1949, is now vice president i/c of such sales. . . .

JOHN A. MACLEOD is happy over his new job as manager of power and steam div., Brown Co. . . . ALFRED B. CLARK, recently with St. Regis in New York as asst. director of labor relations, is now director of labor relations for Brown. . . . NEAL DRAPER, asst. director of sales with



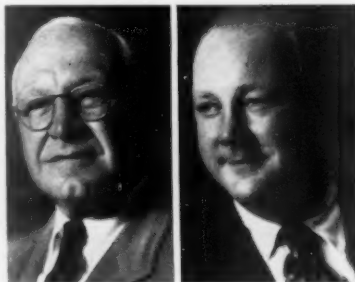
**Dr. R. C. Calkins—Director of Research, Development for Riegel . . .**

. . . serves all operations of Riegel Paper Corp. Joined Riegel as a chemist in 1947. Was made director of paper research in 1955 at New Jersey mills. Will continue to report to Ward Harrison, vice pres. and Gen. Mgr. of Production.

Allied Solvay Process Div., is now asst. to the exec v.p. of National Aniline Div. of Allied. . . .

DR. ARNOLD J. HOIBERG was appointed asst. research director of The Flintkote Co., PIERCE C. ROWE, pres., announces. He previously was asphalt research director for the Lion Oil Co., El Dorado, Ark., has ph.d. from the U. of Wisconsin. He will assist R. H. CUBBERLEY, research director at the Flintkote laboratory in Whippany, N.J. . . . ALFRED B. CLARK is new director of labor relations for Brown Co., Berlin, N.H. He was asst. director of labor relations for St. Regis Paper Co., New York, and before that personnel mgr. at the St. Regis mill in Jacksonville, Fla. . . . ARTHUR L. HOWSON has joined Finch, Pruyn & Co., Inc. in the accounting dept. A native of Pennsylvania, Mr. Howson was with Scott Paper Co. from 1951 until 1957, the last three years as plant accountant at South Glens Falls, N.Y. He's a graduate of New England College, Henniker, N. H. . . .

KARL E. BUFF joins Eaton Dikeman Co., Filtertown, Mt. Holly Springs, Pa. as tech. director i/c research and new product development. Mr. Buff, a graduate of Elmherst College, Elmherst, Ill., and Institute of Paper Chemistry, Appleton, Wis., was with Congoleum Naim.



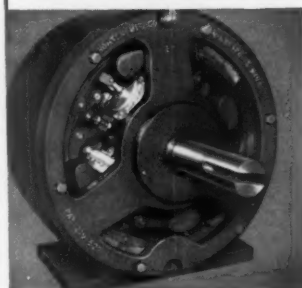
**Donald Appleton (left) Vice Pres., Director, Oxford Paper Co. . . .**

. . . was also elected director of Nashwaak Pulp and Paper Co., Ltd., New York, wholly-owned subsidiary of Oxford. Mr. Appleton will continue as chairman of Oxford's planning committee with responsibility for the firm's manufacturing and development program.

**Philip L. Hovey (right) Vice Pres., Manufacturing . . .**

. . . succeeding Mr. Appleton, was formerly asst. vice pres., manufacturing. His father, Rex V. Hovey, former executive v.p. and late vice chairman of board, died recently.

## STOP TELESCOPING ROLLS MUSHROOMING CORES



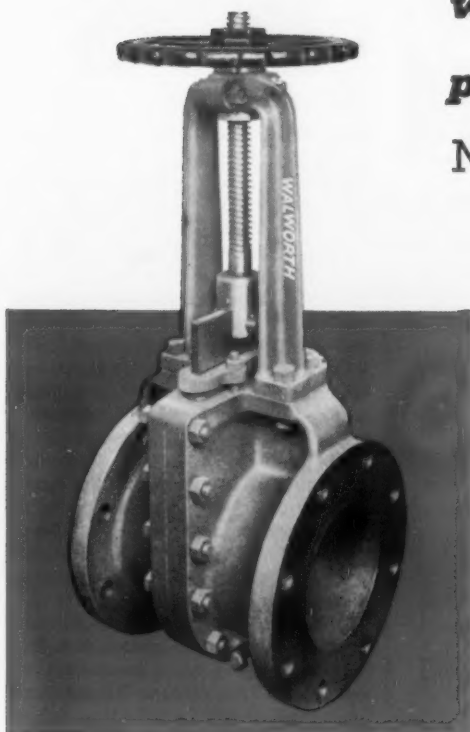
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VARIABLE SPEED CLUTCH PULLEYS  
GOVERNOR CONTROLLED BRAKES

**HORTON MFG. CO., INC.**  
MINNEAPOLIS 14, MINNESOTA

# ASSURE *clogproof valve operation* on stock lines with **WALWORTH** *pulp stock valve*

No. 757F sizes 4" to 16" inclusive

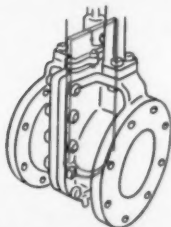


Clogproof operation makes this Walworth Gate Valve particularly suitable wherever pipelines transport pulp stock or other suspensions carrying solids or fibrous matter. There are no bonnet recesses or body obstructions to accumulate matter ... circular ports permit full flow ... semi-circular gate closes to a tight leakproof shutoff.

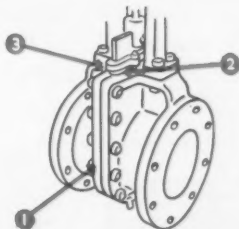
Suitable for a wide range of fluids and operating conditions, this unique valve design is available in All Bronze, Iron Body with Bronze Trim, Iron Body with Stainless Steel Trim, and All Stainless Steel construction. Handwheel, sliding-stem-and-lever, motor, and cylinder operation are available.

The complete Walworth line now includes valves and fittings for "across-the-board" use in pulp and paper mills. Gate, globe, angle, check and lubricated plug valves, as well as pipe fittings, in all conventional sizes and types. For additional technical data on the No. 757F — or any Walworth product — see your nearby Walworth Distributor or write:

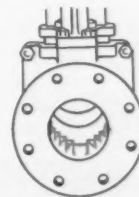
## Check these features:



**Semi-circular Shearing Gate...** Sharpened, beveled edge of the gate shears through matter without touching inlet or outlet halves of the body. At point of closure a tight, leakproof shutoff occurs as the heel of the gate shearing edge wedges with a lug in the inlet half of the body. Ample gate length permits re-sharpening.



**Bonnetless Design...** 1) Two-piece body is bolted together and gasketed on a vertical centerline. 2) Stuffing box is an integral part of the body. 3) Packing and one-piece gland completely encompass gate.



**Body Shearing Notches...** Lower portion of the seat of the outlet half of the body is notched to better distribute the fibers of the pulp stock. This makes it easier for the gate to cut through fibrous material.

## WALWORTH

*Manufacturers since 1842*

valves ... pipe fittings ... pipe wrenches

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**Southern . . .**

**Memo from WFD . . .**

The Southern Exposure: OTIS TUCKER, onetime asst. purchasing agent at Brunswick Pulp & Paper Co., takes over as purchasing agent, replacing HERMAN H. SCOTT, who has entered Scott Co.'s industrial sales div. Mr. Scott will continue to live in Brunswick, operate in the

Jacksonville area . . . Speaking of Brunswick P&P, its excellent monthly magazine *Pine Chips* reports that it only takes a train of 50 cars 14 seconds to pass a railroad crossing—whether your car is on it or not! . . .

The Southern Exposure: WILLIAM M. ALIN, former sales mgr. of Continental Can Co.'s Containerboard and Kraft Paper division, has taken over as vice president of the division. He succeeds



**Fred A. Ritter, Sales Mgr. of Gulf States Paper Corp. . . .**

. . . and its E-Z Opener Bag sales div., Tuscaloosa, Ala., replaces Amos M. Schuster who resigned to go with Virginia-Carolina Chemical Co., Richmond, Va. Mr. Ritter was gen. sales mgr. of Capital Paper Co., Indianapolis, Ind.

JOHN C. MICHAUD, member of family which built and operated Hodge, La., mill for many years, who resigned . . . DEAN STOUT takes Mr. Alin's position as sales mgr. of the division . . . speaking of vice presidents, JAMES L. MADDEN, Scott Paper Co. v.p. and one of its directors, has been elected a director of Brunswick Pulp & Paper, jointly owned by Scott and Mead. Mr. Madden is in charge of timberlands and pulpwood procurement for Scott's Hollingsworth & Whitney div. He is former president of H & W. . . .

JOHN McK. LIMERICK, of Bathurst Power and Paper Co., Bathurst, N.B., has been appointed technical program chairman of the 11th Alkaline Pulping Conference which will be held Nov. 6-8 at Charleston, S.C. DAVE WEATHERHORN, technical dir. at Southern Paperboard Co., Savannah, will be publicity chairman and West Virginia P&P's VINCE KANE heads up local arrangements . . . C. A. (Gus) GOINS has been named resident salesman of Wyandotte Chemicals' Southeastern dist. office. He'll call Atlanta home . . . JOHN BENEDICT is now representing John W. Bolton & Sons and its Emerson Manufacturing Div. in the South, under supervision of SAM CROCKER. He's a graduate of Boston U. . . .

GORDON WILSON, who has been acting pulp mill supt. at IP's Bastrop mill, has been officially named to that position by Bastrop mgr. L. L. LAPEYROUSE. He succeeded ELLIS WHITE who was transferred to another IP mill . . . Brunswick P&P also deserves congratulations for winning its latest award, a plaque from the National Safety Council for reducing the frequency of disabling injuries during 1956. . . .

While we're on awards, KIRK SUTLIVE has just garnered his umpteenth—this time from Univ. of Georgia Forestry School Alumni for outstanding contributions to forestry in Georgia made by Union Bag-Camp's public relations ace.

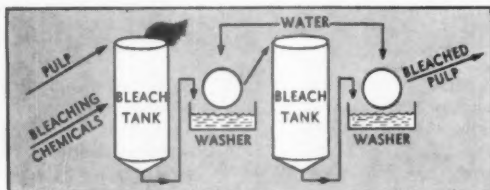


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**SULFUR DIOXIDE**  
**HIGHEST**  
**QUALITY**  
**SO<sub>2</sub>**

*for Effective Removal of*

**Residual Chlorine!**

Tennessee's liquid Sulfur Dioxide is a most efficient and economical antichlor. Removes residual chlorine and other materials which cause color reversion or yellowing with age. It also eliminates excessive residual chlorine in water.



Tennessee's Liquid Sulfur Dioxide practically 100% pure, is also very effective as a reducing, bleaching, and neutralizing agent, preservative and pH control.

*We would like to consult with you on the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing.*

**Available In:**

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- TON DRUMS
- TANK TRUCKS
- TANK CARS

**TENNESSEE**



**CORPORATION**

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LOUIS KLEIN, formerly with Gulf States Paper Corp. plant study group, is now a member of the staff of Rust Engineering in Birmingham. He's doing pulp and paper engineering work. New address: 2502 Mountain Branch Circle, Apt. C. . . .

B. W. HASKELL, who was field engineer in the construction of Rayonier's new \$25 million "mirror" of its existing mill at Jesup, Ga., earned himself a promotion on that job. He's chief engineer of the newly organized Southeastern Central Engineering div. which will serve the Jesup and Fernandina mills from a new headquarters at Jesup . . . . L. T. MURPHY has retired from his position as v.p. and prod. mgr. of Tennessee Paper Mills in Chattanooga. New appointments there: C. L. TRAVIS and DON BAKER become supts. JOHN MUNROE is chemist of the mill. . . .

Scholarship committee of the Pulp and Paper Foundation has awarded \$24,900 in scholarships to the North Carolina State College's School of Forestry and its new Pulp and Paper Technology Curriculum. Half of the amount goes to students already there on scholarships—the rest to 23 new applicants. . . .

JOHN E. RAY, III, who joined Camp Mgr. Co. in 1945, rose to vice president, has been named resident mgr. of the Camp div. of Union Bag-Camp. He will take over responsibility for lumber operations, woodlands, public relations and mill planning. He will also continue to be in charge of pulp and paper operations at Franklin, Va., mill . . . . DR. ARTHUR M. STERN, asst. professor of bacteriology at Rutgers University and holder of an m.s. and ph.d. in bacteriology from Univ. of Illinois, has become a member of the staff of West Virginia Pulp and Paper's Covington, Va., research center. He'll specialize in consultation and study of microbiological problems in pollution and slime control for the company's six eastern mills. . . .



**Charles McCarthy Move to N. Y. . . .**  
 . . . to assume responsibilities for all pulp and paper mfg. of Robert Gair division of Continental Can Co. As v.p. and plant mgr. at Port Wentworth, Ga., he directed Southern Paperboard mill; now also directs former Southern Advance company mill at Hodge, La., where Gair division was starting up new machine this month. Claude M. Adams, former gen. supt., takes over as manager at Port Wentworth.



**Only  
 .0006 minutes  
 down time  
 per ton!**

**A plant engineer  
 proves that WARREN Stock  
 Pumps slash maintenance costs**

Here are the figures that proved to the plant engineer of a large eastern paper mill\* that Warren Stock Pumps stand up longer with less maintenance:

**116 minutes down time  
 190,000 tons of stock** = only .0006 minutes down time per ton!

These figures were compiled over a period of several years, during which the pumps operated continuously—24 hours a day, 7 days a week. Under the same severe conditions, non-Warren pumps handling the same services required much more down time attention.

By actual figures, this plant engineer verified his confidence in selecting Warren Pumps for the vital job of transferring paper stock at all consistencies—with a very minimum loss in maintenance time.

Work stoppages due to pump failure cut production, jump costs. Discuss your problem now, with a Warren Pump specialist.

\*Cascade Plant, Brown Company, Berlin, N. H.



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PF-39

**WARREN PUMPS, INC., Warren, Massachusetts**

Gentlemen:

Please send me free Stock Pump bulletins No. 234, No. 235 and No. 243. I understand they will help me select the pump best suited for my requirements.

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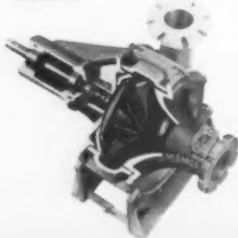
☐ PLEASE HAVE YOUR REPRESENTATIVE CALL.



## the pump they couldn't clog!

It was a hydropulper application, handling 500 GPM of 5% stock at 50' TDH. Among the things that sometimes entered the line were rubber gloves, baling wire, and even a tablecloth! A 6" Wemco torque flow Solids Pump passed them all and asked for more!

Write for more information on this amazing pump and its "can't-clog" liquid impeller action.



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TORQUE-FLOW  
**SOLIDS PUMP**

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LLOYD MERWIN is a new v.p. of Crown Zellerbach's Gaylord Container Div. and gen. mgr. of converted products for that div. He also becomes a member of CZ's management committee. He's been with CZ since 1935 . . . LEE MAYBACH heads the CZ engineering task force assembled at St. Francisville, where ground is already being cleared for the \$31 million machine coated paper mill scheduled to start operating in November, 1958. . .

W. R. CRUTE has become the first "40-year-Champion" in Champion Paper & Fibre Co.'s Texas Div. He started at Canton, N.C., in 1917, went to Texas in 1936 to design, build and finally manage the Pasadena mill. Nicest tribute paid him thus far was in Champion's magazine which said: "All his life Mr. Crute has been an engineer—of people, of products, even of society itself." . . .

NORMAN LeMASITRE, formerly with Gulf States Paper Corp., is now asst. staff engineer for Rust Engineering Co. in Birmingham . . . FRED WIERK, onetime staff engineer with Reynolds, Smith and Hills, has set up his own pulp and paper engineering consulting service at 1043 Arbor Lane, Jacksonville, Fla. . .

WILLIAM THRETHAWAY has been named mgr. of Fischer & Porter's southeastern area, which includes Atlanta, Birmingham, Knoxville, Jax and Clearwater. His contemporary in the southwest: GLEN DORFLINGER, in charge of offices in El Paso, Dallas, Houston and New Orleans . . . WARREN E. SAVANT, of Lakeland, Fla., has become managing dir. of the Citrus Container Institute, which develops proper specs for packing and loading methods and transportation of corrugated boxes used in shipping Florida fresh citrus fruits . . . J. E. ANDREWS is now branch mgr. at Ft. Smith, Ark., for Corn Products Sales Co. . .

HARRY HOWE assumes duties of asst. supt. of the cone dept. at Sonoco Products Co., Hartsville, S.C., in addition to present duties as cone dept. engineer. A graduate of Clemson, he joined Sonoco in 1947 . . . OTIS TUCKER, formerly asst. purchasing agent, was named purchasing

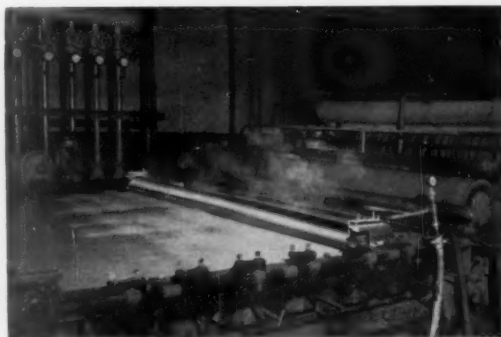


**Floyd D. Gottwald, Jr., Vice Pres., Albemarle Paper Mfg. Co. . . .**

. . . retains his position as secy. for the Richmond, Va., firm. He is a native of Richmond, graduate of Virginia Military Institute and has m.s. degree from Univ. of Richmond. He joined Albemarle as laboratory asst. in 1943.

agent of Brunswick Pulp and Paper Co., Brunswick, Ga., succeeding HERMAN H. SCOTT who has transferred to Scott Paper Co. . . . RUDOLF SCHMUT of Graz, Austria, a 1952 graduate of Western Michigan U. Dept. of Paper Technology, received Doctor of Technical Science degree at the Technical University of Graz in June. He plans to return to the U.S. to work in the research div. of West Virginia Pulp and Paper Co., Covington, Va. . . . ALBERT S. GRAYSON, JR., of the Multiwall Bag Div., Owens-Illinois Glass Co., was appointed manager of the multiwall bag plant at Valdosta, Ga. . .

R. E. "BOB" BARRON, asst. personnel director at the Escanaba Paper Co. for the past five years, is new personnel director of Mead Corp.'s Sylva, N.C. div. OSCAR FRASIER, recently CEO rep at Crown Zellerbach's Camas mill, has been transferred to St. Francisville as assistant to LEE MAYBACH in charge of structural inspection during construction . . . TOM MCDANIEL, JR., former technical asst. to maintenance supt. at CZ's Gaylord Bogalusa mill, was transferred to CEO until Feb. 1958, assisting with design of electrical facilities for the new Louisiana mill. He will then report to St. Francisville to supervise the electrical phase . . .



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**Increase  
Paper Production  
with  
DUPASQUIER  
DRIPLESS STEAM  
SHOWER BOX**

- Preheats the Web  
U. S. patent 264 2314
  - Changes Water Viscosity  
THUS FREEING WET MAT
  - Allowing Speed Increase
- Custom Built for Any Machine  
Canada Pat. 1955  
Other pat. pdg.

Write for Illustrated Folder

B. W. HASKELL, field project engineer on construction of Rayonier Inc.'s new \$25,000,000 Jesup, Ga., mill, is promoted to chief engineer of newly formed central engineering div. for southeast operations. The new division will serve Rayonier's Fernandina Beach, Fla., and Jesup mills and Southeast Timber div. . .

**Over and Out:** In commemoration of National Pun Week (what will they think of next), we'd like to report one of the worst. It was recently being passed around by an industry peddler we know, but we'll leave off his name for his own protection. Seems there were two Russians, Georgi and Rudolf. Georgi was a little shot, Rudolf right up there next to the big shots. Georgi decided to gain favor by inviting Rudolf over for dinner and as they were sitting on the terrace whetting their appetites it began to snow. "Early for snow," commented Georgi. "That's not snow, it's rain," answered Rudolf. "Oh no," insisted Georgi, "it's white and cold; it's snow." Georgi's wife, realizing even a minor difference of opinion could mean disaster for her husband finally interceded. She tapped Georgi on the shoulder and confided: "Rudolf, the red, knows rain, dear!"

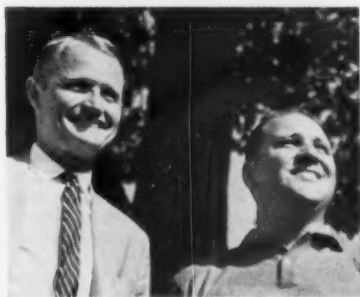
Selah. . .

## Middle West . . .

### Memo from DGC . . .

The annual Joint TAPPI-Supts. Fun Day at Gull Lake, Mich., was a success, due largely to efforts of Chairman DEAN GRAHAM, Dupont, chairman, and his assistant, BILL WALMSLEY, Hooker Electrochemicals, who takes over the top spot next year. There were over 250 at the dinner, and 185 played golf. A few others tried casting, horseshoes, etc.

BILL HONEY and FRED VAN STREAIN, both of Price and Pierce Ltd., Kalamazoo, managed the golf tournament, and Bill walked off with best gross . . . a hot 70. Next were TOM FLANAGAN, asst. to supt.



**Bill Walmsley (left), and Bill Hovey (right) star at Michigan Fun Day . . .**

First Bill, Hooker's district mgr. in Chicago, was asst. chairman of the annual event at Gull Lake, Mich., and the second Bill, Price & Pierce pulps rep, finished far ahead of the field in golf of 185 golfers with a gross of 70.

## Does your work concern protective coatings?



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## handy gauge measures wet film thickness of protective coatings

Ordinarily, the final thickness of a protective coating is unknown until the coating has cured, or dried. Then it is often discovered too late that the film is too thin. The result? An additional coat must be applied or the coating fails prematurely. Either way, it is costly and inconvenient.

But now you can avoid such trouble, with this new contribution to Carboline's Engineering Approach to corrosion protection. This precision-ground gauge allows you to accurately measure (.0015" tolerance) **wet** film thickness **during** application, determine final dry thickness, and make any necessary adjustments **immediately**.

If your work concerns protective coatings, request this essential gauge (one per request while our supply lasts). There is no obligation.

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Coatings and Linings**

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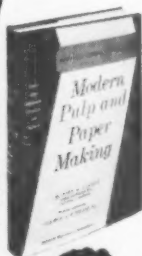
Covers latest equipment,  
processes, and methods...

# Modern Pulp and Paper Making

**Revised  
and Enlarged  
THIRD EDITION**

Revised and edited by  
**JOHN B. CALKIN**  
President  
Calkin and Bayley, Inc.  
Industrial Consultants  
Previous editions by  
**GEORGE S. WITHAM, Sr.**

1957, 558 pages, \$10.00



Just  
Published

Encompasses in a single volume the fundamental principles of modern pulp and paper making. The present work, a complete revision of the widely used editions by George S. Witham, has been entirely rewritten by 13 outstanding authorities. The result is a basic guide for practical paper makers; for young men in the industry who need ready assistance in the mill; and for technical men in related fields who need to know the salient facts.

## Presents Information Unobtainable Elsewhere

Here is an up-to-date treatment covering modern equipment, processes, and methods. Included is valuable information on the economics of the industry, on general mill design, and especially on the core of the papermaking industry—the machine room. These important subjects are not covered in such great detail in any other book. All who need a broad knowledge of pulp or paper technology and manufacturing will be amply rewarded by this useful volume.

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## PULP & PAPER

## Strictly Personal

of printing, KVP Co., and VAUGHAN NESBIT, Stanley Steel Strapping, Detroit, who grossed 81 each. Mr. Van Streahin came in with an 83. . . .

Mr. and Mrs. JAMES VERDON (he's F. C. Huyck's rep., based in Kalamazoo), are mighty proud of a new baby daughter, Carol, just a little over three months old. The Verdon's have a son, Mike, 17, and daughter, Karen, 13. . . .

JOE RUE, from merged Oldbury Electrochemicals, is new Hooker sales rep. in Michigan, succeeding BILL WALMSLEY, now district mgr. in Chicago. Joe bases in Detroit. He's a Seton Hall grad. . . .

JOHN JOHNSTONE, another legacy from Oldbury, is Hooker rep. in Cincinnati. . . . Also for Hooker, HAROLD WEVER, have moved to St. Louis from Chicago, and MATT BISSELL, from New Jersey to Chicago. . . . ERNIE BLUE, in Appleton, CHARLES DAVING, in Beria, O., and GEO. CHYNOWETH, working out of Chicago, are others in Midwest. . . .

ARTHUR A. COFFIN, who represents Titanium Pigment, and is famed for showing gem samples at conventions, was married recently to Bess Cook, a neighbor of many years in Evanston, Ill. They honeymooned on the west coast. Mr. Coffin was a widower. . . .

Staff members of the Institute of Paper Chemistry, Appleton, Wis., are busy these days. DR. F. E. BRAUNS left to give lectures at Osaka University, Japan. JACK WEINER takes Dr. Braun's place as editor of Section 23 (Chemical Abstracts). . . .

DR. HARRY LEWIS, vice pres. of the Institute, headed for Cambridge University, England. . . .

DR. CARROL L. GAREY has joined the Institute staff as research associate. He was at the Arkansas Agricultural Experiment Station and previously taught at the U. of Nebraska. Dr. Garey has b.s. and m.s. de-



**Patrick J. Noel (left) Supt. of Finish-  
ing, Wausau Paper Mills Co. . . .**

. . . was formerly with W. A. Krueger Co., Milwaukee, has been Brokaw, Wis., mill's sales-service coordinator since 1954.

**Robert S. Howard (right) Tech.  
Asst. to Paper Mill Supt. . . .**

. . . is a graduate of Marquette U., was formerly at Institute of Paper Chemistry and with Hudson Pulp and Paper Corp. He has been a process engineer at Wausau since 1954.

grees from the U. of Nebraska and ph.d. from Purdue. . . . RENATE MESSER resigned as Dr. Lewis' secretary and moved to the West Coast to get married. . . . GEORGE GRAHAM and HANS VAN BUIJ-

## Meet Huyck's "PETE"



As Manager of Huyck's Field Service Engineers, Irving Peters heads the largest, best-trained engineering service staff in the felt industry. A graduate of the Department of Pulp and Paper Technology at Syracuse University, and recognized as the foremost authority on felt application, "Pete" and his staff offer service to every paper mill in the United States.

# HUYCK FELTS

First in Quality . . . First in Service Since 1870



**John R. Parkinson Receives West-  
brooke Steele Gold Medal Award**

. . . for outstanding thesis submitted by ph.d. candidates at Institute of Paper Chemistry, Appleton, Wis. Dr. Parkinson won degree in June and is now project chemist, Pulp div., Weyerhaeuser Timber Co., Springfield, Ore.

TENEN are working towards getting airplane pilot licenses. . . . JOHN PRIDHAM, formerly of the Institute, is now at the University of Edinburgh, Edinburgh, Scotland. . . .

M. J. AUCHTER, vice pres. i/c mfg., Charmin Paper Products Co. (Procter & Gamble division), Green Bay, announces organizational changes: JAMES G. HENRY, former personnel supt. of P&G Defense Corp., Milan, Tenn., will head new dept. of industrial relations, unifying personnel, safety, first aid and recreation. JERRY FUHR heads new industrial engineering dept., with NEIL BALDSCHUN, TOM JENKINS, TRAVIS GOODWIN and FRED SHORT on his staff. Mr. Fuhr was with P&G in Cincinnati. JOHN H. FELDMANN, JR., takes over a new post as Div. B manufacturing supt., and CHARLES MULCAHY takes the same post at Div. A. . . .

Promotion of D. J. BRETT, JR., to personnel manager for the Mill Division, Owens-Illinois Glass Co. headquarters, Toledo, O., is announced by C. G. McLAREN, vice president and general manager of mills and woodlands. Mr. Brett has been personnel manager of the Valdosta, Ga., mill for the past year. He is succeeded in that post by FOSTER COLEMAN, former personnel manager of O-I's glass container plant at Waco, Tex. He is a native of Texas and 1938 graduate of Baylor Univ. He joined Owens-Illinois in 1942, after teaching physical ed. and coaching swimming and freshman football teams at Baylor.

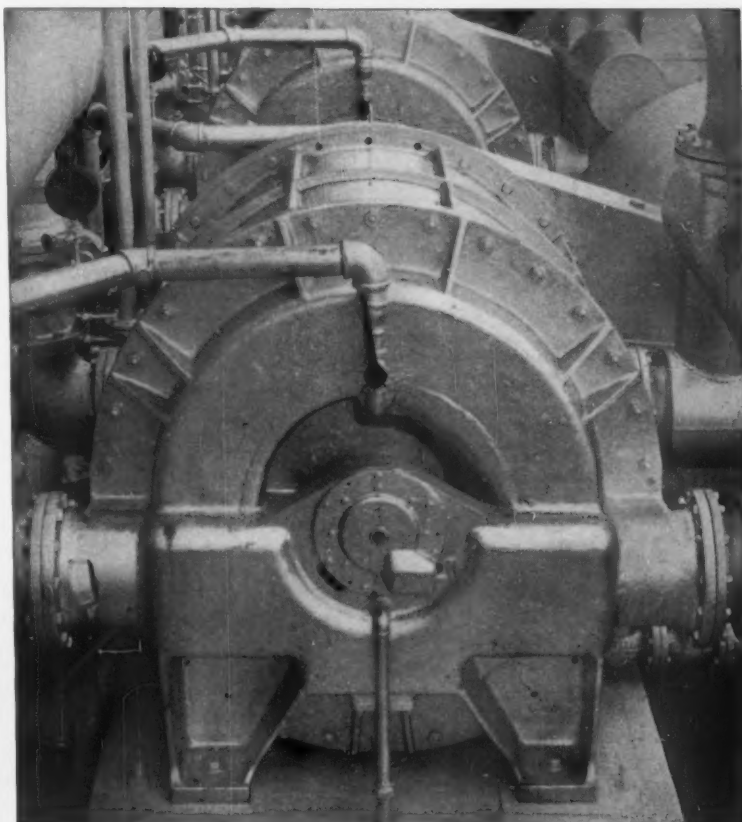


#### Kendall Heads Northwest

HARRY T. KENDALL is new president of The Northwest Paper Co., Cloquet and Brainerd, Minn., succeeding Stuart B. Copeland (retired). A native of Houston, Tex., Mr. Kendall is 45. He was with General Timber Service, Inc., St. Paul, and Soundview Pulp Co. (now Scott), Everett, Wash., before joining Northwest in 1938. He became vice president in 1948, exec v.p. in 1954 and a director in 1955.

ROY I. NILSEN, asst. mgr. of mfg., was elected a new vice president. Three other v.p.'s are MACE V. HARRIS, mgr. of mfg.; B. W. McEACHERN, mgr. of sales, and F. A. KELLY, mgr. of land and timber.

## High machine speeds? High temperature headbox stock? You need **NASH** Vacuum Pumps!



Air from the suction rolls on paper machines carries with it substantial quantities of moisture. This considerably reduces the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump, because of the unique principle of operation, the bulk of this vapor is effectively condensed inside the pump. The total capacity of a Nash is therefore increased.

When you specify a Nash Pump it can be closely sized to the job. It is not necessary to select an over-sized unit, because the rated capacity of the Nash may be relied upon.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

### **NASH ENGINEERING COMPANY**

441 WILSON ROAD, SO. NORWALK, CONN.

## NEW PVC DRAINAGE FITTINGS for corrosive wastes



Tube Turns Plastics announces a new line of socket type drainage fittings for solvent cementing, which make possible these advantages of PVC drainage systems:

- Pipe and fittings cost less than conventional materials.
- System weighs about 1/10 as much.
- Labor costs less — can make joint in 1/4 usual time.
- Fewer tools and supplies needed.
- Fewer joints required — pipe as long as 20 ft.
- No losses due to breakage.
- Unimpeded flow conditions.
- Unaffected by ground conditions or galvanic action.
- Joints stay tight permanently.

Write for Bulletin TTP-119. Tube Turns Plastics, Inc., Dept. PA-9, 2929 Magazine St., Louisville 11, Kentucky.

**TUBE TURN PLASTICS, INC.**  
Louisville 11, Kentucky

Call your TUBE TURNS  
PLASTICS' Distributor



**TUBE TURN PLASTICS, INC.**  
Dept. PA-9  
Louisville 11, Kentucky

Please send Bulletin TTP-119 on PVC  
Fittings, Flanges and Valves.

Company Name \_\_\_\_\_  
Company Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
Your Name \_\_\_\_\_  
Position \_\_\_\_\_

H. R. MOORE, vice pres., Bergstrom Paper Co., was elected chairman of Information Service, Wisconsin Paper Industry. JOHN BECKER, vice pres., Rhineland Paper Co. and BRUCE J. BOERNER, director of industrial relations, Cornell Paperboard Products Co. were elected vice chairmen. . . . WILLIAM TOLLEY was advanced from asst. mgr. to mgr. of purchases at Nekoosa-Edwards Paper Co., succeeding J. K. VANATTA, eligible for retirement but is continuing in the department. . . .

REUBEN B. ROBERTSON, JR., president, Champion Paper & Fibre Co., was re-elected to the board of B. F. Goodrich Co. and appointed by Ohio Gov. C. William O'Neill as a trustee of Miami U., Oxford, O. Mr. Robertson had resigned as Goodrich director while he was deputy secretary of defense. . . .

FRED HERBOLZHEIMER was named production mgr. of Thilmany Pulp & Paper Co., according to C. R. SEABORNE, exec. vice pres. Formerly production services supt. at Thilmany, Mr. Herbolzheimer is a graduate of U. of Maine and was production mgr. at the Marinette mill before joining Thilmany. . . . W. H. SCHLAFGE, gen. mgr., Minnesota and Ontario Paper Co.'s specialty paper and Insulite fiber board plant, International Falls, Minn., announces appointment of W. T. PETERSON as plant engineer. Mr. Peterson graduated from U. of Minnesota. . . .

Five employees with a total of 178 years service with River Raisin Paper Co., Monroe, Mich., retired recently, including HARRY L. LAMB, director of production. He continues as a board member. JAMES C. BUTLER, shift supt.; ERNEST A. DEL MANZO, salesman, THOMAS E. HOLLINGSWORTH, salesman, and HAROLD E. FOSTER, scheduler for the corrugator, were others. . . . HERBERT W. SUTER was promoted to senior vice pres. i/c marketing, Champion Paper & Fibre Co., Hamilton, Ohio. H. W. SUTER, JR., becomes vice pres. and mgr. of the newly formed paper sales div. Other promotions: HENRY W. RIGBY to vice pres. i/c corporate development; KARL R. BENDETSSEN, vice pres. i/c operations; and STEPHEN B. CHASE, JR., vice pres. and mgr., Texas div.

### Take Western Michigan Course

A special three-week program in "Principles and Practice of Coated Paper Manufacture" at Western Michigan University's department of paper technology was completed by Douglas Duncan, Missiquoi Corp.; Ian Watson, American Box Board Co.; Andrew B. O'Neill, Minerals and Chemicals Corp., of America; Linus Heming, West Virginia Pulp and Paper Co.; Maurice Mahieu, Allied Paper Corp.; John C. Phillips, Penick and Ford, Ltd., Inc.; Kenneth Maves, Bergstrom Paper Co.; Jerome Kronfeld, National



From left — Roberts — Barney — Dixon . . . among Fox River Paper Corp. employee-owners who now . . .

### Own 85% of Company

. . . employees purchased stock interest of the late E. A. Oberweiser. As a result, William Roberts, president, now owns a majority of the company's stock.

Offices of chairman of the board and financial vice president were abolished. Dave E. Oberweiser, who formerly held these offices, has retired and moved to Southern California.

Directors elected: A. S. Bradford, Appleton, Wis., attorney, V. F. Houghton, Madison (Wis.) c.p.a., and Mr. Roberts. Officers elected were: Mr. Roberts, president and general manager; H. P. Dixon, vice president; H. O. Barney, secretary and treasurer; and E. R. Small, assistant secretary.

### (Advertisement) Sandwell appointment



Paul E. Cooper

P. R. Sandwell, President of Sandwell and Company Incorporated, Consulting Engineers, announces the appointment of Mr. Paul E. Cooper as a Director and Executive Vice President. Mr. Cooper, formerly President of Crown Zellerbach Canada Limited, is well known throughout the pulp and paper industry and is a past chairman of the Executive Committee of the Canadian Pulp and Paper Association.





# Buckeye has perfect control from pulpwood to wood pulp

From forest to finished product, every step in the manufacture of Buckeye Pulp is engineered and controlled to the Nth degree. Our 800,000 acre tree farm in Florida is carefully supervised, harvested and replanted with superior seedlings. At the huge Buckeye plant, custom-designed equipment and advanced processes convert selected logs into wood pulp to meet the most exacting standards of quality and uniformity. Every stage of production is constantly checked and double-checked by a rigid system of plant and laboratory controls.

Visitors to our Foley plant are amazed at all that is done to make sure of complete customer satisfaction. It can pay you to discuss your requirements for bleached or semi-bleached kraft with us. Address inquiries to:

BUCKEYE CELLULOSE CORPORATION, Memphis 8, Tenn.

*Wood Pulp Plant at Foley, Florida  
Cotton Linters Pulp Plant  
at Memphis, Tennessee*

# BUCKEYE PULP

Bleached and Semi-Bleached Kraft  
from Southern Pine

## Strictly Personal

Starch Products; Nollie B. Guerrant, Jr., New York and Pennsylvania Co.; Robert Meintrup, Union Starch and Refining Co.; Joseph-Peter Leiber, U.S. Playing Card Co.; Elmer R. Urig, B. F. Goodrich Chemical Co.; Edwin F. Erickson, Northwest Paper Co.; Bruce O. Dickson, Arnold Hoffman & Co.; Chester Deas, International Paper Co., Moss Point, Miss.; Gunar Wetterling, Hafrestroms Aktiebolag, Haverud, Sweden; William Goen, Simpson Paper Co.; Frank O'Fla-

herty, Alliance Paper Mills; R. W. Edwards, A. E. Staley Mfg. Co. and Dr. Adolphus Damusis, Wyandotte Chemical Co.

### Familiar Names—Institute Leaders

Of wide interest in this industry is a recent report from the Institute of Paper Chemistry which recalls the men who have been leaders of its Pulping Group and Pulping Laboratory over the years

... first there was **GEORGE MCGREGOR**, then **HOWARD MORGAN**, both now industry officials on the West Coast, then **CHARLIE KOON**, **LOREN FORMAN**—he's out West, too, for Scott—then **KENNETH GLIDDEN** and **DON MacLAURIN** (who joined Gilbert Paper Co. two years ago). Now a transplanted Texan, ex-Champion **MALCOLM MAY**, is chief of the section ... Newest members of this staff are **NICHOLAS JAPPE**, graduate of U. of Washington, with ph.d. earned at Institute in '56, and **ED DALESKI**, graduate of Michigan College of Mining and Technology. **JOHN PECKHAM**, formerly of Nekoosa Edwards, is manager of the laboratory.

## Canada ...

### Memo from CLS

**R. A. IRWIN**, active in the industry in Canada for more than 20 years, has been appointed a vice president of Bathurst Power & Paper Co., according to Pres. **R. L. WELDON**. Mr. Irwin, who will also serve as assistant to the president, was formerly president of the E. B. Eddy Co. and of Somerville, Ltd., Hull, Que. ...

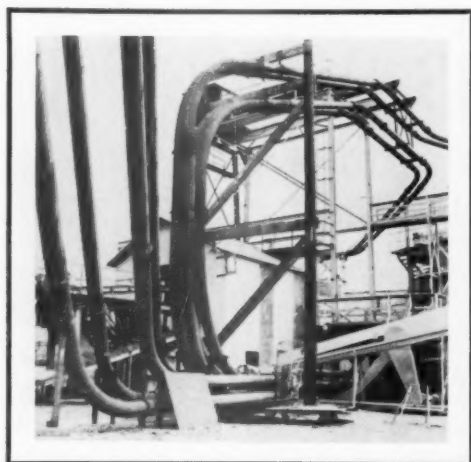
**DR. RALPH PATTERSON**, who has been directing research and planning for Powell River Co. for the past two years, has been appointed asst. resident mgr. at Powell River mill. He succeeds **HOWARD URQUHART**, who moved to Vancouver head office as asst. vice pres.

**M. S. M. HAMILTON**, Canadian Pulp & Paper Assn. in Montreal, will assume wider responsibilities in the organization, according to Pres. **ROBERT M. FOWLER**. **D. W. HOGG** has been named asst. mgr. of the industrial relations section. ...

**WILLIAM DONALD MAY**, formerly with Imperial Chemical Industries in England, is now associate physicist in the mechanical pulping division, Pulp & Paper Research Institute of Canada. Replacing **GEORGE LAMB**, he will work with **DR. ATTACK** on the fundamentals of the mechanical production of paper-making fibers from wood. ...

**E. S. McLEAN** is new treasurer of Fraser Companies, Ltd., Edmundston, N.B., and of its subsidiaries, Fraser Paper, Ltd. and Restigouche Co., succeeding **H. HENDERSON** who retired. **H. M. LOGAN** succeeds Mr. McLean as asst. treas. Mr. Henderson was with Bathurst 38 years. Mr. McLean joined the company at Plaster Rock, N.B., in 1924. Mr. Logan was with **George A. Touche & Co.**, chartered accountants, before joining Fraser in 1956. ... **AL C. HECKMAN** received congratulations and a gold watch signifying 25 years service with Fraser Paper Ltd., from **JACK HIERLIHY**, mill mgr. A native of Bangor, Mr. Heckman graduated from Univ. of Maine, joined Fraser in 1932. ... **R. B. FORBES**, who joined Fraser eleven years ago as asst.

## RADER HANDLES EIGHT JOBS WITH TWO HANDS



Two Rader pneumatic conveyors do the work of eight ordinary installations in this system, operating at Longview Fibre Co., at Longview, Washington. Two pipes speed chips to a storage pile at one end of the plant, two to a pile at the other end. Two others transport chips to the screen room in the plant, the others feed digester storage. Chip flow can be diverted through the lines by swift, easy-operated valves that take only a moment to switch. The versatile lines take the most convenient route to their destinations, climbing vertically to carry their loads over the tops of buildings and around the many obstacles in a pulp mill. Many types of valve systems are available for each individually-designed Rader job. There virtually is no limit to the distances or delivery problems that can be overcome with a Rader pneumatic conveyor.

### RADER PNEUMATICS, INC.

1739 N. E. 42nd Avenue

Portland, Oregon

Vancouver, B.C.  
4645 Main St.

Preston, Ont.  
Canada

Eureka, Cal.  
Box 61

Boston, Mass.  
No. 10 High St.  
Rm. 716

Memphis, Tenn.  
Box 3722  
Municipal Airport

purchasing mgr., was appointed purchasing mgr., succeeding W. R. CLARKE who retired after 38 years with the company.

H. J. BUECHLER is promoted to sales manager of Black-Clawson (Canada) Ltd., Montreal, according to E. M. ROOT, vice pres. and gen. mgr. Mr. Buechler is a native of Hamilton, O., and a graduate of Purdue U. He joined Black-Clawson in 1948, transferred to sales staff of the Canadian subsidiary in Jan. 1956. . .

CHARLES FRANKLIN, tabulating dept. supervisor for Howard Smith Paper Mills at Cornwall, Ont., has resigned to assume new duties with the new pulp mill being built at Thurso, Que. . . HUGH YOUNG, who served in several Canadian companies before returning to Howard Smith Paper Mills where he first entered the industry, has been named plant engineer at Cornwall, Ont., succeeding HOWARD MEADD, recently retired. Mr. Meadd was plant engineer for 30 years and played an important part in the mill's expansion since 1925. . .

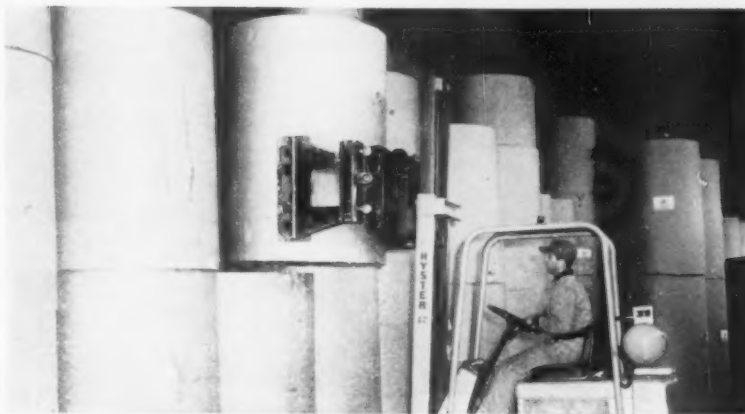
D. B. FOSS has been appointed mgr. of manufacturing, Consolidated Paper Corp., according to Vice Pres. RICHARD COLLINS in Montreal head office. E. T. BUCHANAN is new divisional manager at Laurentide; J. B. SWEENEY heads the Port Alfred div. and C. M. WILLIAMS has been named chief engineer for the corporation. . .

G. HOWARD SMITH, gen. mgr., Don Valley Paper Co., was elected a director of Alliance Paper Mills. . . J. H. PRICE, secy. of Alliance, moved his office from Merritton, Ont., to Toronto where he is liaison between sales and operations for the company. C. S. MCBRIDE was promoted to Alliance treasurer. . . A. GORDON LASCHINGER succeeds J. R. LESLIE, retired, as controller of Howard Smith Paper Mills. D. E. EASTMAN is new chief internal officer, succeeding Mr. Laschinger. . .

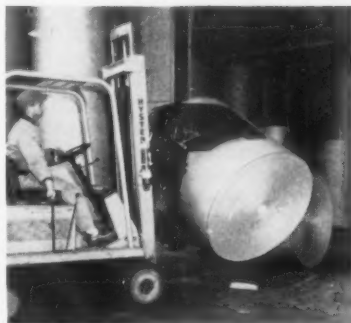
PAUL E. COOPER, former president of Pacific Mills and Elk Falls Co., British Columbia subsidiaries of Crown Zellerbach Canada, has been named executive vice pres. and director of Sandwell & Co., consulting engineers, Vancouver. B. C. Mr. Cooper recently returned from a tour of South America to survey pulp and paper mill possibilities for W. R. Grace & Co., which subsequently engaged WENTWORTH BROWN to head up its pulp div. for that area. Mr. Brown previously was with Columbia Cellulose, Vancouver, B. C., and Brown Corp., LaTuque, Que. . .

JOHN ANDREW, formerly statistician of Canadian Pulp and Paper Assoc. is new secretary to Chemical and Mechanical Pulp Sections and of the Board Section CPPA. E. L. MURRAY succeeds Mr. Andrew as statistician. . . GORDON KEYS was named mechanical engineer for the woodlands div., CPPA. A graduate of U. of Toronto, he was with the Pulp and Paper Research Institute of Canada.

## TWO LIFT TRUCKS LOAD 40-TON CAR IN 35 MINUTES



Rolls are stacked on dock in temporary storage.



Rotating roll to vertical while traveling saves time.



Rolls loaded on end in boxcar.

ANTIOCH, CALIF. — At the Kraft paper plant of Crown-Zellerbach Corporation, two 5000 lb. capacity Hyster lift trucks, with Paper Roll Clamps, load cars 16 hours per day completing a 40-ton car every 35 minutes. One of the Hyster trucks stacks paper during the remaining 8 hours of the 24-hour shift.

### Rotates Rolls to Vertical

Rolls are taken in the horizontal position from floor conveyor, rotated to vertical while moving and set on end in car for shipment or on dock in temporary storage. Rolls vary from 40" to 56" dia. and from 18" to 86" in length and weigh up to 3000 lbs. Both Hyster trucks are equipped with LP-Gas fuel system, and Revolving Paper-Roll Clamps.

Hyster® materials handling methods streamline handling procedures, increase production and lower costs. Your Hyster Dealer keeps up with materials handling progress in your area. Call him today—for help with your production methods.

Call your Hyster Dealer.  
He is in the yellow pages  
under "Materials Handling"  
or "Trucks-Industrial"



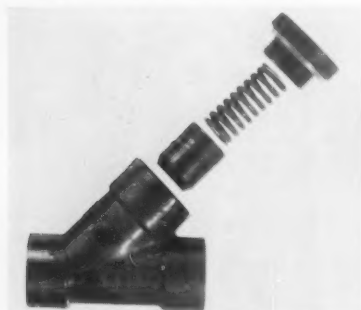
**HYSTER**  
COMPANY



**Hyster Industrial Trucks Increase  
Profits for Pulp and Paper Plants**

**Factories:** Portland, Oregon  
Danville, Illinois  
Peoria, Illinois  
Nijmegen, The Netherlands



**Check Valve is All-Plastic**

What is described as the first all-plastic lift check valve has been introduced by Walworth Co., 60 East 42nd St., New York, N.Y. Body and components are made of normal impact rigid polyvinyl chloride to provide high corrosion resistance to alkalis, acids, inorganic salt solutions, etc. A highly durable PVC spring positions the disc to assure quick and complete shutoff.

The valve operates successfully at pressures up to 150 psi at 75° F. Complete shutoff was obtained during and after 2 million continuous cycles under 125 lbs. of air and 50 lbs. of water. Long service life and light weight are advantages. Available for pipe from ½ through 2 in. in size, and comes in either threaded, solvent-weld socket-type or flanged ends.

**Pressure Tester is Portable**

A new, bench-type hydraulic and pneumatic test stand called Porta-Tester has been developed by Farris Engineering Corp., 525 Commercial Ave., Palisades Park, N.J., for use wherever pressure equipment must be tested without an external source of power. The unit is completely self-contained, low in cost and easily portable. It can be operated by anyone

without previous training.

The Porta-Tester is designed for testing safety and relief valves, globe, gate, plug and other valves, pressure vessels, piping and pump cases. It is suitable for the liquid testing up to 3000 psi of male screwed valves ½ through 3 in. inclusive and all female screwed valves ½ through 1 in., as well as flanged valves to 4 in. with 600# A.S.A. flanges. The unit is furnished with mounting adapters, hand pump and gauges and an air connection is provided for seat-leakage testing.

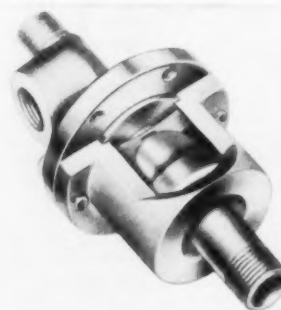
**Revolutionary Device  
For Survey Work**

The "Tellurometer" may do for the surveying crew what the atom bomb did for the foot soldier. This is an electronic measuring device operating somewhat like radar but employing electro-magnetic rays. In a recent British Columbia demonstration of Tellurometer—one purchased by Vancouver surveying firm of McElhanney, McRae, Smith & Nash, reported to be the first such unit on the Pacific Coast—the master section was set up on Little Mountain and the remote component placed approximately 14 miles away. After getting these units positioned, the actual measuring of the distance between the two points was quickly made—the Tellurometer indicating the components were 69,332.2 feet apart.

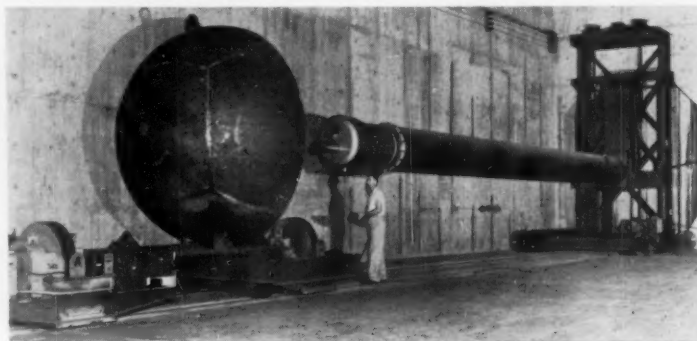
The Canadian government's Mapping & Surveys Dept. has seven of these machines in use.

T. L. Wadley, of Telecommunica-

tion Research Laboratory, South African Council for Scientific & Industrial Research, developed the Tellurometer. It sells for around \$10,000 and is produced by Tellurometer Proprietary Ltd., P. O. Box 2023, Capetown, Union of South Africa.

**Rotary Joint Won't Freeze**

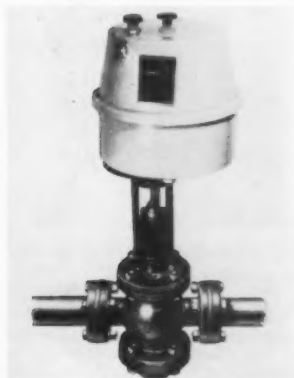
A new freeze proof rotary joint, the "all new" Phillips Exacto, reported to have given unusually long service life on such equipment as Fourdrinier paper machines, corrugators, waxers, etc. This unit is described as eliminating "seizing or freezing on the roll." The standard unit operates efficiently at steam pressures up to 250 psi, with temperatures up to 500° F. and speeds up to 1000 rpm. Other features include flexible shaft alignment for easy installation, packless and self-lubricating bearing surfaces, with a new low minimum turning torque. A catalog is available by writing to Phillips Sales Co., P.O. Box 417, West New York, N.J.

**Supervoltage X-Ray**

This 1,000,000-volt X-ray machine of Chicago Bridge & Iron Co., at its Birmingham, Ala., plant, one of the most advanced applications to date of super-voltage equipment for industrial radiography, is shown ready

to inspect a pressure vessel head fabricated by CB&I. Equipment is also used for non-destructive inspection of welded shell seams in heavy wall pressure vessels.

## Valve Actuator is Electro Hydraulic

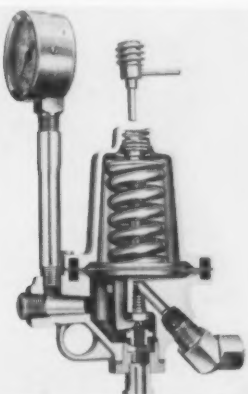


A new addition to the line of valve actuators made by Askania Regulator Co., 240 East Ontario St., Chicago 11, will be exhibited at the 12th annual Instrument - Automation Conference, Cleveland, Sept. 9-13 for the first time.

It is designed to operate from signals supplied by commercially available controllers, remote positioning devices or directly from the measuring element. The self contained unit is designed for valves with  $\frac{1}{2}$  to  $1\frac{1}{2}$  in. full stroke which require less than 200 lbs. thrust. Standard signal range is

from 1 to 5, or from 4 to 8 milliamperes d.c. For a-c signals, an internal rectifier is supplied. Electrical connections comprise only two signal wires and two wires for power supply. Write for Bulletin 38.3.

## Pressure Regulator Won't Clog



All new design, diaphragm-type fluid pressure regulators that eliminate plugging, clogging and material build-up found in conventional bellows type fluid regulators are announced by Gray Co., Inc., 1001 Sibley St. N.E., Minneapolis (13). These Graco Uni-Flo regulators provide extremely sensi-

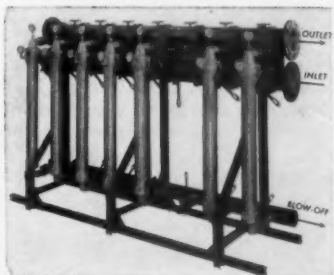
tive, positive control of all pressures without surge or variation in supply lines.

A new "Mylar" polyester diaphragm is impervious to all known solvents and permanently separates fluid chamber from control mechanism. Three models control all fluid pressures from fractions of a pound up to 160 psi. (Photo illustrates cutaway view of high pressure regulator.)

## Miniature Diaphragm Seals

A line of miniature diaphragm seals, having cylinder bore diameters of from  $\frac{1}{8}$  to 1 in., has been added to the basic Bellofram group of 1 in. to 6 in. diameter piston seals. The additional range should facilitate the design of small power devices and instruments in which size and weight are critical factors. Acting as both bellows and contact area diaphragms, the miniature piston seals function efficiently even in assemblies which are not perfectly aligned or machined. Standard miniature seals are obtainable having cylinder bores of .94, .87, .81, .75, .69, .62, .50 for use through a wide range of applications. For further details, write Bellofram Corp., Burlington, Mass.

## ELIMINATE DOWN-TIME on your Filters and Strainers



Ronningen Model 208 Multiplex Filter with 1 unit removed from line for service—and all the others can continue to operate.

Bronze and copper construction; also all 316 stainless steel; also all steel.

All are Quick Coupling—Non Short-Circuiting. Sealed both ends. Each unit can be back washed and blown down in 5 seconds.

Heavy reinforced inner assures 150 PSI "dead short" without collapse.

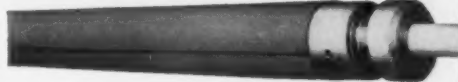
Write for Bulletin 954U  
STRAIN AGAIN WITH RONNINGEN  
"Particles large or small, we filter them all!"

**RONNINGEN-PETTER CO.**

Vicksburg, Michigan Phone Midway 8-5161  
Representatives throughout U.S. and Canada

## Tidland

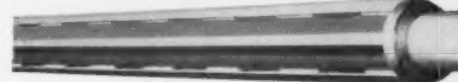
**PNEUMATIC SHAFTS**  
custom-engineered, collapsible, for winding, rewinding or unwinding rolls of any material. Proved savings for producers, printers and converters of papers, films, foils, rubber and fabrics.



▲ LEAF TYPE SHAFTS FOR WINDING



▲ LUG TYPE SHAFTS FOR UNWINDING



▲ SPECIAL SHAFTS FOR ANY SERVICE

**SAVE SET-UP TIME.** "Lug" type shaft for unwind eliminates chucks, and when used for rewind operation does away with spacer cores or collars; calibrated for quick, easy alignment of web. "Leaf" type for rewind with or without cores.

**UNIFORM NON-SLIP GRIP.** Four-way air expansion for positive non-slip gripping; centers shaft in core; eliminates core damage.

**RELEASES INSTANTLY.** A quick-release valve deflates air tube instantly. Collapsed Tidland Shaft slips out easily. No hammers, wedges or wrenches needed.

Get your Tidland Shafts from

**CAMERON**

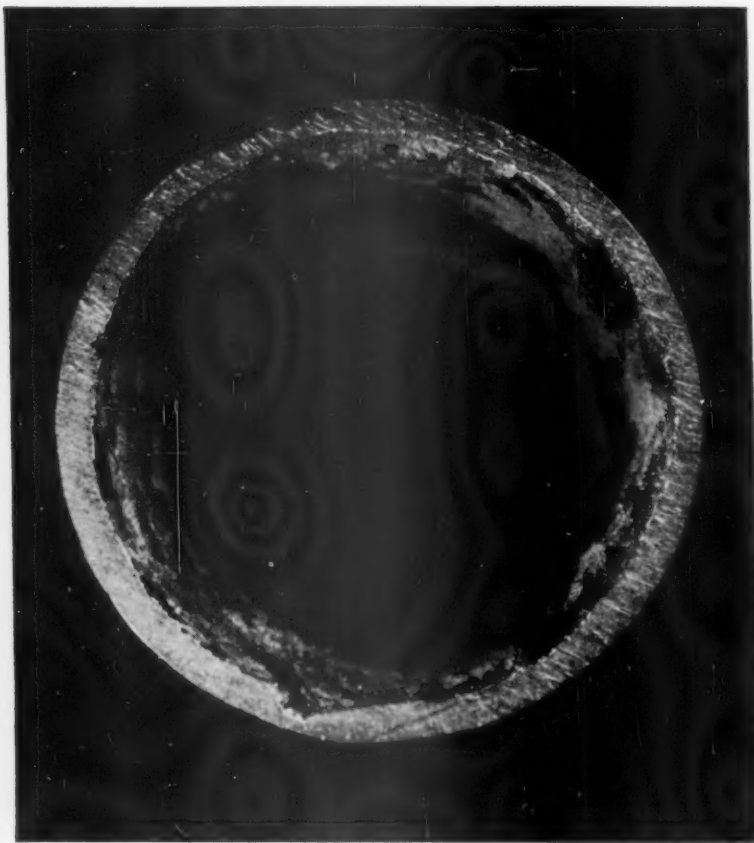
the world's leading producer of slitting and winding equipment.

**CAMERON MACHINE COMPANY**

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Royal Bank Bldg., Toronto 1, Ont.

France: Batignolles-Chatillon  
5 Rue De Montessuy  
Paris (7e) France



Using vertical polarized light on a cross-section of pipe, photographer Bernard Hoffman clearly shows the ravages of corrosive action.

## Controlling Corrosion in Fluid Engineering

Corrosion seldom works alone. Together with heat, pressure and abrasion factors, it compounds the problems of fluid engineering. But when you have valve design problems involving corrosion, you can look to the engineering leadership available at S. Morgan Smith for assistance.

You can use R-S Rubber-lined Butterfly Valves, for instance, to handle many special applications. The rubber lining protects the entire valve body, gives you corrosion resistance with maximum economy. Where your processing problem demands additional engineering, you can draw on the broad SMS background of experience in specialized valve applications.

There is a complete SMS line—Rotovalves, R-S Butterfly Valves and Ball Valves—to meet your fluid control problems. To obtain full information, contact our nearest representative, or write S. Morgan Smith Company, York, Penna.

# S.MORGAN SMITH



AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

Rotovalves • Ball Valves • R-S Butterfly Valves • Free-Discharge Valves • Liquid Heaters • Pumps • Hydraulic Turbines & Accessories



**Albert Hardaker, Sales Engineer,  
Eastwood-Neally Corp. . . .**

. . . will represent Belleville, N.J., firm assisting Vernon Knight of Mobile in the South. Mr. Hardaker, a native of Mass., is a graduate of Worcester Polytechnic Institute.



**T. G. Ganryd, Mgr., Product Improvement,  
Frank G. Hough Co. . . .**

. . . was project engineer for the Libertyville, Ill., firm. He has a b.s. from Norrköping College and m.s. from Chalmers University, Gøthenburg, Sweden.

### F&P Names Sales Chief

ROBERT L. RICE has been promoted to general sales manager of Fischer & Porter Co., Hatboro, Pa., manufacturer of complete process instrumentation. He joined F & P in 1950 as a sales engineer, becoming manager of the Cincinnati office a year later. For three years he has been manager of F&P's Water and Waste Division.

### Promotions at Chain Belt

LUTHER H. BOSNIAN, vice presi.-mfg. facilities, becomes senior vice pres.; WILLIAM J. SPARLING, vice presi.-mfg. and industrial equipment, becomes vice presi.-mfg. and facilities; EDWARD M. RHODES, mgr.-chain operation, becomes gen. mgr.-industrial equipment section; and GEORGE H. WOODLAND, continuing as gen. sales mgr. for industrial equipment section, assumes additional sales responsibilities relinquished by A. R. ABELT who retired as vice presi.-sales. EDMUND P. MEYER, works mgr.-Milwaukee plants and LOUIS J. MICHEL, sales mgr.-foundries also retired. The three have a combined total service of 129 yrs. with Chain



Belt Co., Milwaukee, Wis. HAROLD PATZER, castings sales engineer, is promoted to sales mgr.-foundries.

#### Appleton Woolen Appointment

Appleton Woolen Mills, Appleton, Wis., announces appointment of DONALD J. WULGART as manufacturing and development engineer. Formerly with Convair division of General Dynamics, he received his b.s. in chemical engineering from Univ. of Wisconsin in 1949, and his m.s. in physical chemistry from Univ. of Wyoming. He spent four years in the army as aerial engineer. He held engineering positions with Mosinee Paper Co. and the Institute of Paper Chemistry.

#### Sandy Hill Promotes Five

Recent promotions at The Sandy Hill Iron & Brass Works, Hudson Falls, N.Y., are: NILS KLYKKEN, vice pres. and mgr. of pulp machinery div.; ALBERT G. BELLOS, chief engineer; GEORGE E. CLINK, chief development engineer and asst. to vice pres. i/c engineering; EDWARD C. BURNS, asst. chief engineer; and JAMES J. FUSCO, chief draftsman.



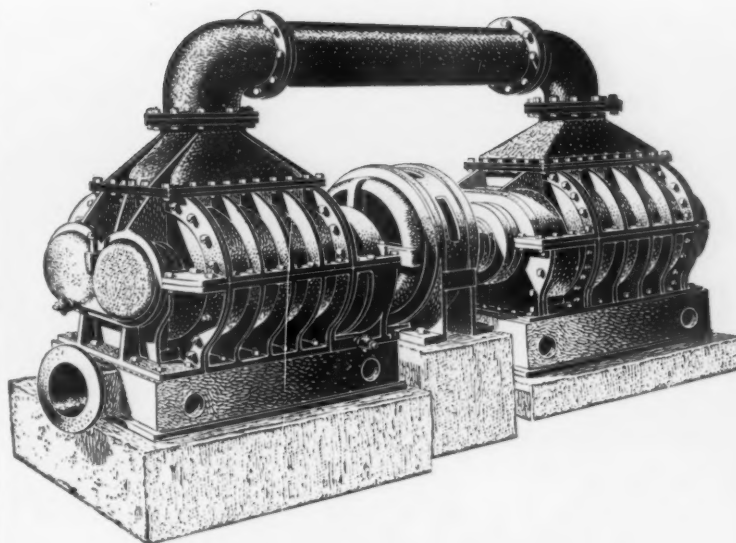
**K. G. Looker (left) Sales Engineer, Joins R. A. Goodwillie (right) in Beloit Iron Works Office . . .**

. . . Mr. Goodwillie heads the West Coast office in Portland, Ore. Mr. Looker has been with Beloit 13 years.



**Robert M. Kearns (left) and Barclay Morrison (right)—Managers of New Depts. at Carpenter Steel Co.**

Mr. Kearns, former engineering and methods mgr., is now mgr. of the div. engineering and planning dept., and Mr. Morrison, who was specialty products mgr., is mgr. of product engineering and development dept., both in Alloy Tube Division, Union, N. J.



## R-C high speed vacuum pumps cost less to install and operate

Outstanding performance over many years in hundreds of applications in paper and other process industries have built a strong preference for Roots-Connorsville vacuum pumps.

- Reduced horsepower at higher speeds (600 rpm and up) saves as much as 25% in power and lowers the cost of motors.
- Minimum sealing water required, from 4 to 40 gpm. Performance is unaffected by water temperature.
- Straight spur gears permit operation without axial thrust, reducing maintenance and holding downtime to a minimum.
- Internal parts readily accessible for inspection without disturbing impeller clearances.
- Compact units require small floor space and less expensive foundations.

R-C vacuum pumps are supplied in single-stage or compound units to meet any capacity requirement. For specification data, write for Bulletin 50-B-13.

.....  
**Engineers**—unusual career opportunities await you at Roots-Connorsville. Address your resume to Professional Employment Manager.  
 .....



### ROOTS-CONNERSVILLE BLOWER

A DIVISION OF DRESSER INDUSTRIES, INC.



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## Panalarm Annunciator pinpoints process "off-normals"

In the process industries and among users of automatic machinery, trouble is minimized when it's caught early. That's the purpose of the Panalarm Annunciator System—a continuous monitor of your process.

One typical adaptation of the modular Panalarm system is engineered to differentiate between the first "off-normal" and subsequent "off-normals" caused by the first. This feature allows instantaneous recognition of the prime source of trouble in a "chain reaction."

Another adaptation is designed specifically for motor start-up and shut-down. It has also been successfully adapted for supervisory control, pump control and programming.

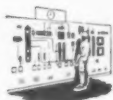
Your Panalarm sales engineer will be happy to make a survey of your requirements to determine whether a Panalarm system can aid productivity and safety in your process. For electrical and mechanical data on standard systems, request Catalog 100B on your letterhead.



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**Mike Pipes Joins Electric Steel . . .**

. . . in Central Sales District, Danville, Ill. Mr. Pipes has been in sales and promotional work most of his life, most recently operating his own industrial film studio. He will spend full time working with Esco's nation-wide system of stainless steel fittings dealers.



**Cameron Machine Appoints Representative Victor Johnson . . .**

. . . he will represent the Brooklyn company in Illinois, Iowa, Mississippi, Missouri, Arkansas, Louisiana and Texas, headquartering in Chicago area. He joined Cameron in 1951, was for past two years asst. to general sales manager.

## Cliff Marvin Dies

J. Clifford Marvin, 63, a vice president and director of both Bulkley, Dunton & Co. Inc., New York, and Carter Rice, Storrs and Bement, Inc., Boston paper sales firm, and an official of Cushion Pack, Inc., paper converter of Hawthorne, N.J., died July 11. He lived in Forest Hills, N.Y.

He started in paper business in Minnesota, later was with Birmingham & Prosser Co., Chicago, and joined Bulkley, Dunton in 1942.

## Wives At Sales Meeting

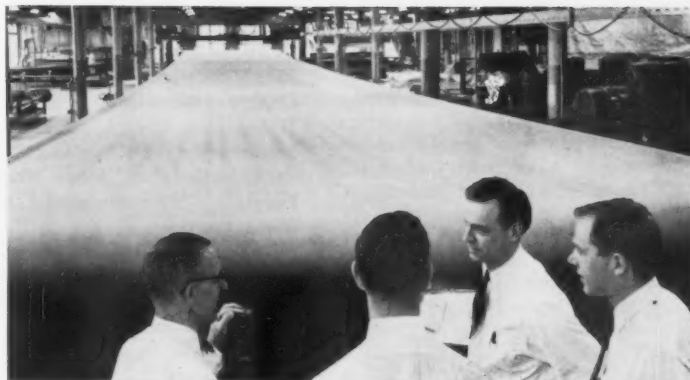
Appleton Woolen Mills brought wives of their salesmen to the company's annual sales conference in Appleton, Wis., in July. They were invited a year before by F. H. Orbison, president, and Claire Turner, sales manager. Elaborate plans were made to acquaint wives with the company. The ladies attended several sales discussions and toured the plant.

## New Head Named For Paper School

Prof. D. S. Davis, graduate of Massachusetts Institute of Technology, is new head of the department of pulp and paper technology in the Chemistry School, University of Alabama.

Prof. Davis taught chemical engineering at Wayne University and the Virginia Polytechnic Institute and was with The Mead Corp. and International Paper Co.

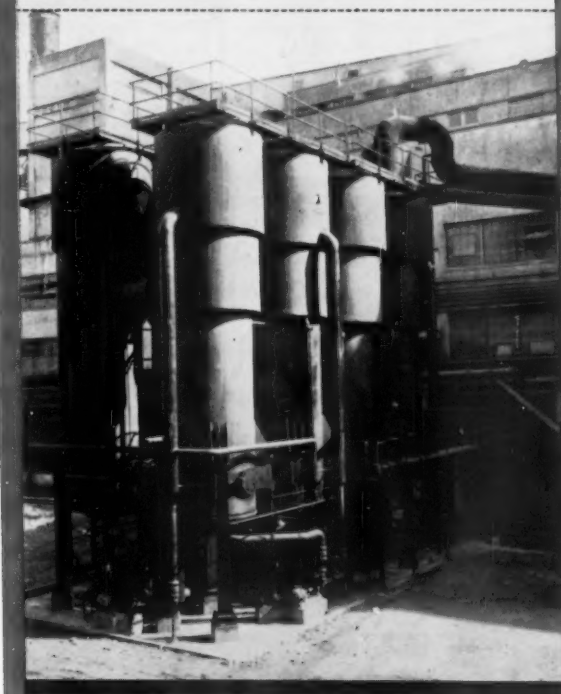
Dean Robert Dixon Brown in announcing the appointment, said the grants to the UA pulp and paper curriculum from Gulf States Paper Corp. total \$125,000. These have been supplemented by University funds and facilities. The University has now constructed complete laboratory facilities for pulp and paper.



## World's Largest Felt . . .

. . . has been custom built in main plant of Albany Felt Co., Albany, N. Y.—287 ft. in length, 234 in. wide, weighs 1052 lbs.—for bottom position of new No. 3 machine at the Eden Mill of Whippany Paper Board Co., Inc., Whippany, N. J., an 8-cylinder paper board machine which in itself is the largest of its type in the world. The felt was manufactured in a special synthetic content design for greater strength and durability and was given the Albany Felt J-3 treatment to provide maximum drainage and greater production on the machine.

87 OF AMERICA'S "FIRST HUNDRED"  
CORPORATIONS ARE WHITING CUSTOMERS



## Crown Zellerbach Reduces Operating Costs with Swenson Evaporator System

Crown Zellerbach answers the need for greater operating economy with this modern septuple-effect system at their Camas, Washington, kraft pulp mill. It evaporates more water per pound of steam than the former unit and gives dependable, trouble-free service. This installation—like 90% of all such septuple-effect recovery systems—is Swenson-designed.



### Send for booklet

"An Open Door" shows how efficient Swenson equipment opens the door to lower production costs. Write today. Swenson Evaporator Company, 15632 Lathrop Avenue, Harvey Illinois.

# SWENSON

Proved Engineering for the Process Industries

Since 1889





### Kamyr Digester Talk Slated By Alkaline Group

A descriptive analysis of the Kamyr continuous digester is among the topics on the bill of fare of the 11th Alkaline Pulping Conference, scheduled for Charleston, S.C., Nov. 6 through 8.

Also slated is a program on semi-chemical pulping, which has become a perennial part of the conference since its inception a few years ago. In the past an afternoon session has been devoted to this subject.

Other topics on the program: "Additives in White Liquor Clarification," "The Relationship Between Pulp Quality and Alkali Concentration," "Liquid Salt Cake," "Reuse of Black Liquor in Kraft Pulping and Its Effect On Bleaching to High Brightness Levels," "Recommended Caustic Room Practices, Accent on the Venturi Scrubber, Oxygen Meter and Magnetic Flow Meter" and "Short Wave Length Ultra Violet Light Absorption of Alkali Lignin."



**Thorough Barking  
with minimum Brooming**

### Carthage Barking Drums

Carthage Barking Drums thoroughly remove the bark with minimum brooming of the logs. Heavy, all-welded design with full-length plates. Service life is exceptionally long and maintenance exceptionally low on these massive, heavy-duty barkers.

Write for Complete Information

**CARTHAGE**

**MACHINE COMPANY CARTHAGE, NEW YORK**

### Safety Congress in October

The 45th annual National Safety Congress and Exposition, to be held Oct. 21-25, Chicago, Ill. The pulp and paper section and forest products section hold separate sessions. Further information may be obtained from R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.



**Joseph W. Greene (left) New Vice Pres. of Sales, Crane Co., Chicago**

... to coordinate industrial, plumbing and heating-air conditioning sales. All of Crane's company-owned branch houses in 141 cities will be under his direction, as well as marketing research and advertising-sales promotion.

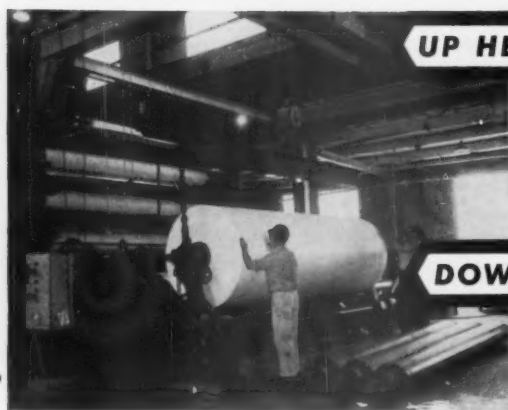
**Charles W. Lovelace (right)  
Director of Industrial Sales ...**

... succeeds Mr. Greene in that post; was mgr. of valve and fittings dept.

### Graver Tank Celebrates Its 100th Anniversary

In 1857, 15-year-old William Graver joined with his half brother, Michael, in forming a little iron plate business in Pittsburgh. Two years later oil was discovered in western Pennsylvania. The petroleum industry and Graver Tank & Manufacturing Co. grew up together.

When the depression of 1883 closed steel mills along the Allegheny, Mr.



**UP HERE, there's A EUCLID CRANE**

**Placing  
Cores on  
the Paper  
Winder**

**DOWN HERE**

for details write

This essential paper mill operation is made easier and accomplished quicker with the aid of a precision control Euclid Crane.

Directly behind the large sheet roll of paper are three more cores ready for placement on the winder.

Paper mill cranes are a specialty of ours. We can build them to meet your general or specific handling needs. For stand-by or continuous service. Any capacity, any control system.

That's why an ever increasing number of paper mills are specifying EUCLIDS.

**THE EUCLID CRANE & HOIST CO.**  
1363 CHARDON ROAD • CLEVELAND 17, OHIO

Graver made a fresh start in Chicago. He supplied wheelbarrows, then lard tanks for a meat packer. He designed a storage tank in which lighter boiler plate was used in upper sections where pressures were less—first of many contributions he made in tank-building. He moved to Lima, O., finally to East Chicago, Ind.

In 1910, his five sons took over administration. In 1930, Edward N. Goselin became Graver's president. New plants in Delaware, Oklahoma, California and Texas followed.



**Clete Martin (left) and Andy O'Neill, new for Minerals & Chemicals . . .**

. . . Both work out of M&C Corp. of America offices in Menlo Park, N.J. Mr. Martin is a grad of the U. of Penna., with a bachelors in chem engineering (1948), joined M&C as research chemist, working for 5 years in lab development and research. In 1953 went into sales and tech service, now is in paper sales. He's a jet pilot in USN Air Reserve.

Mr. O'Neill, a grad of N.J. State Teachers (b.s. 1951), served in U.S. Marine Corps in WWII, taught for a while in New Jersey, went into industrial sales for Minnesota Mining & Mfg., then sales for Tension Envelope and M&C, where he took their integrated training program.



**Fred L. Goldsby (left) Asst. to Pres., Chicago Bridge & Iron Co. . . .**

. . . joined CB&I in 1927, has worked in operations, engineering, research and was export mgr. before becoming general sales mgr. and a director in 1954.

**S. C. Hamilton (right) Vice Pres. and General Sales Mgr. . . .**

. . . was formerly district sales mgr. in Houston, Tex., since 1940. He will have headquarters in Chicago. K. W. Lange, formerly in the San Francisco office, becomes Houston manager.

## HIGH QUALITY WATER FOR NEW PULP MILL AT HINTON

From the turbid Athabasca River Northwest Pulp and Power, Ltd. require over 30,000,000 gallons daily of softened and clarified water.

### Latest Design Automatically:

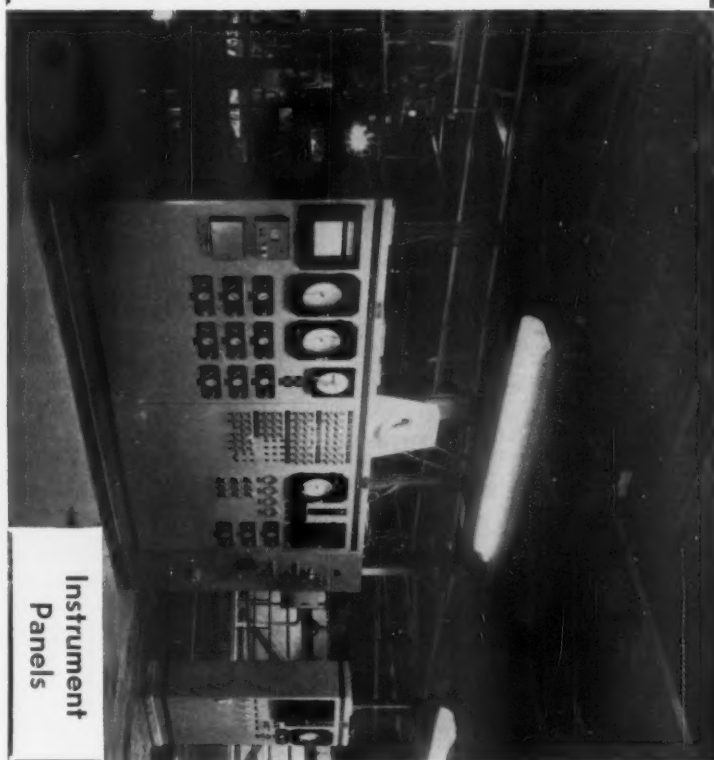
- MODULATES FLOW
- PROPORTIONS CHEMICALS
- BACK WASHES FILTERS

By water treatment specialists:

**NORTHWEST FILTER COMPANY LTD.**

VANCOUVER, B.C.

(NORTHWEST FILTER CO., SEATTLE, WASH.)



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Whether you are an employer looking for the right man or an applicant looking for a better position, it will pay you to investigate our specialized placement service covering all phases of the Paper, Container and Packaging Industries.

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- SALES
- MANAGEMENT

A substantial number of exceptional men are now listed with us and are available almost immediately.

Whatever your requirements, contact us in complete confidence without involving any obligation.

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Personnel Consultant to the Paper Industry

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### MEN WANTED

We can place Chief Operating Engineer with mechanical or chemical engineering degree; Chemists and Chemical Engineers, Sales Manager heavy board; Paper Board Superintendent; Tissue Superintendent (South). If available, SEND US YOUR RESUME. It will be in strictest confidence.

Charles P. Raymond Service, Inc.  
294 Washington St., Boston 8, Mass.  
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### PROJECT ENGINEER

Challenging and responsible position for individual with degree in mechanical, civil or chemical engineering with at least five years experience in pulp and paper or similar industrial fields. Position is at our International Falls, Minnesota location. Salary open. Your reply will be kept confidential and should include personal, educational, and work history together with salary thinking.

Write Don Lindert, Industrial Relations Department, Minnesota & Ontario Paper Company, 500 Investors Building, Minneapolis 2, Minnesota.

### POSITION WANTED

Mechanical Engineer with 8 years experience in pulp and paper maintenance construction and operation seeks responsible position with future in Washington, Oregon, or California. Reply to Box 302, Pulp & Paper, 370 Lexington Avenue, New York 17, N.Y.

### WANTED

A top-notch salesman for a complete line of chemicals for the paper industry. We are an old established chemical manufacturing company desirous of building a paper division. Consequently, only applicants with good sales volume and experience capable of sales manager duties should apply. Send resume, which will be held in confidence, to Box 304, Pulp & Paper, 370 Lexington Ave., New York 17, N.Y.

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One (1) 150 Ton per day, acid proof, washer and thickener. Must handle stock from 1/2 of 1% consistency to 12-15% on outlet. Please address your replies to Box 303, Pulp & Paper, 370 Lexington Avenue, New York 17, N.Y.

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One of the world's leading Pulp and Paper organizations offers sales representation for one or more manufacturers in any area of Domestic and Export trade. Capable merchandising all grades. Discussion invited. Write Box 305, Pulp & Paper, 370 Lexington Avenue, New York 17, N.Y.



## HANCHETT SLITTER KNIFE GRINDER (Wet Grind) for CIRCULAR

Top or Bottom SLITTER KNIVES  
(of all types)  
Full Automatic or Semi-Automatic  
Reasonably Priced

#### This Machine GUARANTEES:

CONCENTRICITY (running truth) to .0005  
SHARP - CLEAN CUTTING KNIFE EDGES  
LONGER MILL LIFE (less changes)  
POSITIVE - ACCURATE FIXTURING  
FINEST MICRO INCH FINISHES  
CAPACITY - 2 1/2" to 24" DIAMETER

Let us prove the value of this machine:  
Send us your knives for test grinding.  
There's no obligation.

## HANCHETT MANUFACTURING COMPANY

World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery  
MAIN OFFICE — Big Rapids, Michigan WEST COAST — Portland 1, Oregon





#### COATING TECHNOLOGIST

Our Technical Department is looking for a man to head the machine coating program for our new paper mill. This mill will produce a variety of Fourdrinier bleached boards and specialties. Basic knowledge and experience with on-machine clay coating and ability to lead a program in developing new types of functional coatings are required. This is an outstanding opportunity for the right man.

Personnel Department  
Riegel Paper Corporation  
Carolina Division  
Acme, North Carolina

#### PAPER MAKING MACHINERY ENGINEERS require DESIGN DRAUGHTSMAN

Applications are invited from well qualified and experienced men for the above position. Apply in writing stating qualifications, training, experience, age and salary required to: W. P. Evans & Son Limited, Engineers, Nashua, New Hampshire.

#### WANTED

#### ASSISTANT SUPERINTENDENTS MACHINE TENDERS BACK TENDERS

For operation of new Fourdrinier paper machine making NSSC corrugating medium.

Immediate openings for qualified men. Write to HUSS ONTONAGON PULP AND PAPER COMPANY, Ontonagon, Michigan.

#### PAPER MILL AVAILABLE

in Mt. Pleasant, Mich.

. . . formerly Sugar Plant

- 9 buildings on 43 acres of land.
- Excellent timber supply.
- Adequate water and waste facilities.
- Moderate labor & fuel costs.
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For complete information write on letterhead to:

Porter Realty Co.  
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Prudden Bldg.,  
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## RIDGID Jamproof 65R

Now Guarantees  
Straight Threads Every Time



Revolutionary new  
**TC (True-Centering) Workholder**  
centers all pipe, even over or under size

No more crooked threads! 65R pre-sets to size by turn of TC workholder gauge ring—tightens by palm-of-hand push on forged cam lever. All 3 jaws close together on pipe by one mechanical action.

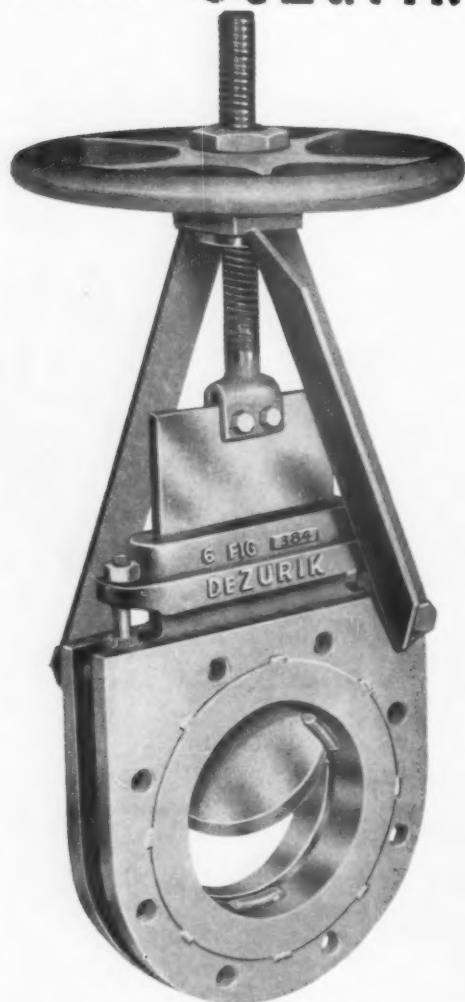
Straight threads, drip threads if desired, jamproof, 1" to 2" with 1 set of dies, fast size change—only 65R offers you so much for your money. Buy it at your Supply House.

**P.S. The new TC workholder fits your present 65R!**

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from DeZurik**



## a FABRICATED BONNETLESS Knife Gate Valve

with more worthwhile features than you've ever had in any gate valve. Get the full story on this low cost, low maintenance valve—now—new—from DeZurik. Write to

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## TENSION CONTROL

**OUNCES TO INFINITY**

Maintain uniform tension...reproduce desired tension at will with the new Pneumatic Applications Co. tension control system. Performs with outstanding uniformity on all pneumatic winding and unwinding operations.

Load sensing journal varies pressure to clutch or brake, making tension adjustments instantly...automatically to provide exact tension throughout operation. Throttling type controller has proportional band of .067%...responds to load changes of a fraction of a pound at any control point.

Compact control panel can be mounted at any convenient location. Operation is so simple little training and no skill is required to operate entire tension control system.

Load sensing journal measures tension at the web of material for greatest accuracy. Sensitive circuit and unique multi-valued variable reset response rate absolutely eliminate unstable control (hunting).



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## A SAFE INVESTMENT

In addition to the independent line action (an exclusive OWEN patent) that gives OWEN Grapples greater grabs and larger log loads, you will find them more dependable and real time and money savers. A complete line of models and sizes, in both 4-prong and open side types.

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### BAR STOCK VALVES

This flow curve for air at 30 psi shows the excellent control obtainable with minimum pressure drop in Hoke's 270 Series bar stock needle valves. The O-ring stem seal will pass a helium leak test...and there's no packing adjustment, no friction even at high pressures. Self aligning stem shuts off tight. For hydraulic and pneumatic equipment, gas analysis, pilot plants, test instruments of all types.  $\frac{1}{8}$ " to  $\frac{1}{2}$ " pipe sizes in carbon, chrome or stainless steel and brass.



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Fluid Control Specialists

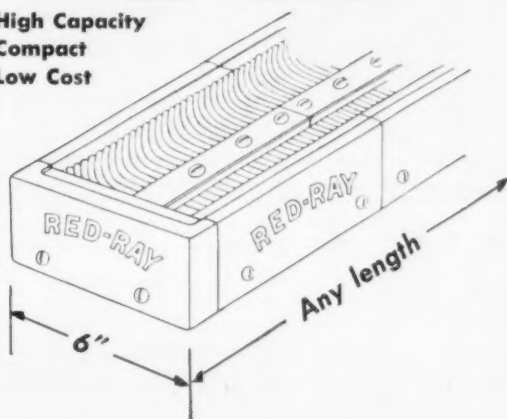
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Heat delivered directly to material.  
The advantages of Infra-Red, with the economy of gas.

**Red-Ray Manufacturing Co., Inc.**  
318 Cliff Lane      Cliffside Park, N. J.

## SCREENING NEWS



### Weyerhaeuser Uses 27 SWECO Separators To Screen Water for Hydraulic Barkers

Hydraulic barking in the forest products industries has created new problems in suspended solids content of water – but Weyerhaeuser Timber Company has solved its water screening difficulties with fast new SWECO Vibrating Screen Separators.



*Weyerhaeuser Timber Company uses 48" diameter SWECO Separators to solve its effluent screening problem in hydraulic barking operations.*

Weyerhaeuser is using a total of 27 SWECO units – all 48" diameter – throughout its vast timber operations in the Northwest.

The SWECO Separators, operating with 105-mesh wire screen cloths (.0665" opening) clean 200 to 500 gallons of input water and effluent a minute. They are used to screen water being supplied to the barkers – to keep suspended solids from damaging pumps and other components. After the water has been used by the barkers, the SWECO units screen the effluent to keep it from clogging mill ponds.

Particles of bark recovered in the SWECO screening process are used as fuel in company power plants.

#### Screening Analysis and Recommendations Available

Your nearby SWECO District Engineer is available to help you with special screening problems. His "know-how" covers 200 different materials... wet and dry, coarse and fine, heavy and light. He will demonstrate, in your plant, how a SWECO Separator can screen your material economically and efficiently. No obligation, of course.

A complete data file on screening pulp and paper products plus a 22-page catalog are yours for the asking. Write for Bulletin S-112-19.



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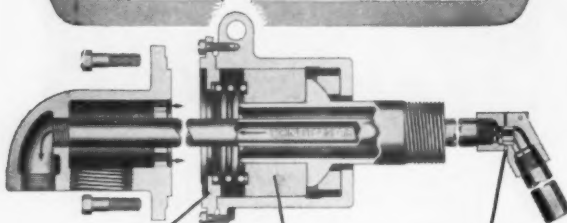
*Engineers and Constructors... Manufacturers*



# The DRAPER *Telt*

DRAPER BROTHERS COMPANY  
CANTON, MASS.

## Johnson Joint SELF-SUPPORTED TYPE with SYPHON ELBOW



**ASSEMBLY PLATE**  
— Holds internal parts in position when head is removed.

**SELF-SUPPORTING** — Needs no external supports of any kind.

**SYPHON ELBOW**  
— Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

### WRITE FOR INFORMATION

Bulletin S-2001 has all the facts on this joint-and-elbow combination that supports itself, has no packing, needs no lubrication, outmodes unwieldy syphon pipes. Johnson Joints are also available in pipe-supported and rod-supported types, to suit all operating needs.

*The Johnson Corporation*

849 Wood St., Three Rivers, Mich.



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- Design and Construction of Pulp and Paper Mills
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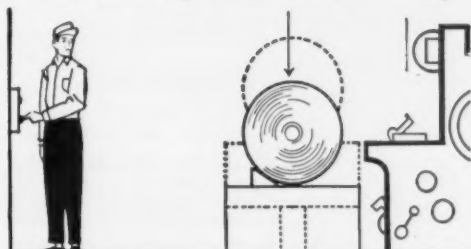
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UNIFORM • SUPERIOR • DEPENDABLE

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551 Fifth Avenue, New York 17, N.Y.

## Lift and lower paper rolls the safe, low-cost way



### PAPER ROLL LIFT

The down-time and expense involved in straightening shafts damaged in handling by dangerous overhead gear will pay the cost of a Rotary Paper Roll Lift. This efficient hydraulic lift with automatic holding chocks insures steady, safe handling always. Other Rotary Lifts can save money, speed operations at loading docks and elsewhere throughout your plant. Capacities to 100,000 lbs. Write for Catalog RE-203.

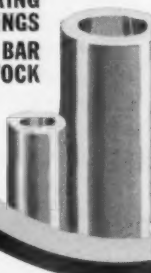
#### ROTARY LIFT COMPANY

Division of Dover Corporation

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## Centrifugally cast STAINLESS STEEL

SLEEVES  
LINERS  
WEARING  
RINGS  
CORED BAR  
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As cast or semi-machined

Annealed for maximum machinability,  
corrosion and heat resistance

- ★ Save time—cut metal waste—order dependable Vollrath stainless steel sleeves in standard cored bar stock sizes—as cast, or semi-machined to 1/16" of size ordered.
- ★ Centrifugal casting assures fine grain structure free from porosity, no hard spots, greater uniformity and superior wear resistance—it assures trouble-free machining.
- ★ Sleeve sizes from 3" to 10 1/2" O. D. Maximum wall thickness 1 1/2". Available sizes, properties, and nominal strengths on request. Write for descriptive folder.
- ★ Also available: stainless steel sand casting and complete stainless steel fabricating and finishing. Fast Delivery!

FOUNDRY DIVISION

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You can't beat  
**HAMILTON Felts ...**  
for all-time "major  
league" performance!



"It is one of the sad truths of baseball" claims a famous sportswriter, "that many youngsters who bud in spring training never blossom in the majors." Even the "freshmen wonders" seldom hold their pace a second year.

Since 1858, however, papermakers have found Hamilton Felts give long high-quality performance between change overs.

Why experiment? Why not put your problems of water removal, finish, adjustment of rolls, longer-life felts and trouble-free operation squarely in the hands of your Hamilton Felt Service Salesmen? He is a "real pro"—backed by 99 years of major league performance and his delivery is big league too!

YOU CAN'T BEAT  
**Hamilton  
FELTS**



HAM FELTZ says:

"Step up and pitch for Safety. Send me (at address below) your favorite safety slogan for publication with—or without —your name, just as you wish. Thanks."

**SHULER & BENNINGHOFFEN**  
HAMILTON, OHIO



...this is Quality

## STAINLESS STEEL TUBING

Automatically "Helwelded" in 10 foot lengths, sized, straightened, pickled and passivated for maximum resistance to corrosion.

STAINLESS STEEL PIPE & FITTINGS  
... for the Pulp and Paper Industry

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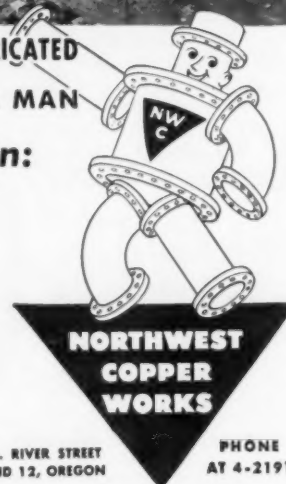


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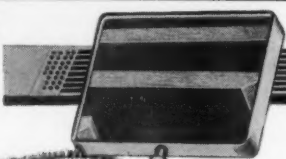
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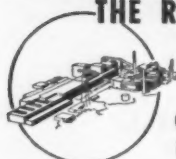
  
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**A Survey of Sorts . . .**

Several members of PULP & PAPER's editorial staff got together in New York the other day. Everyone else has conferences and planning sessions, so why not "our boys?" One of the interesting events of the week was getting excellent seats for the new Gwen Verdon show, and there were reports that a couple editors went down in the village just to hear Gene Krupa. But there were more serious matters discussed, too.

A survey of sorts, which you might say reflects opinions of industry leaders in different sections of the country, was quite optimistic. It was really a survey of opinion in different areas—because PULP & PAPER's editors are strategically located in all the great areas where pulp, paper and paperboard are made.

The older top management outlook for this industry is optimistic. But some younger executives have been jumpy. These people don't know what normalcy is. Also, they know very little about real competition. It has been so long since those conditions existed, they couldn't know.

There can't really be much wrong with an industry that runs at 92% capacity (1957 average at midyear). Actually, this is probably about 95% capacity as effective capacity has shrunk because of slower, shorter machine runs. It indicates that capacity itself is a nebulous term. . . .

**A New Kind of Competition . . .**

Many leaders stress the need for this industry to learn to provide better services. Competition is going to do the industry good. Aluminum, plastics, wood, glass, etc., are hustling, too. They will cut in on paper, here and there.

Twenty and thirty years ago, competition in this industry was between big companies and small companies within the industry. No one's sights were really raised beyond the confines of this industry. But today, the situation is different. Now, competition is between the pulp, paper and paperboard industry and these other industries which are after the same markets. This industry must raise its sights. Fighting each other is not going to win the battle that counts—the last battle, perhaps, as the military experts say.

Actually, pulp, paper and paperboard ought to win it. No other competing industry has anywhere near the opportunities for growth that this one has. And none of these competitors is based on such an ideal raw material, one that can reproduce itself in even greater abundance than exists today.

Radio and TV have certainly reached a very high peak and maybe they have passed their peak. If this is so, they have done so without hurting the pulp paper and paperboard industries, so there is no longer really anything to fear in that quarter. . . .

**The World Picture . . .**

Our WORLD REVIEW NUMBER, and by now you have seen the amazing figures and reports in that volume, show that if every person in the world will use just one pound more a year of paper, we will need 1,000,000 more tons.

Paper is undoubtedly the best measure in the world of a standard of living. We have heard it said that white sugar consumption is the truest measure of living standards. But paper is a better universal one, we are sure.

Paper packaging is just catching on in Europe. You might be surprised to know how little paper is used in some countries, for the everyday things it now has in America. Packaging in Europe is behind the U.S.A. by 25 years. In Latin America, in the Middle East, all over the world, corrugated containers are catching on like wild-fire, too.

Our editors reported that experienced leaders of this industry are convinced there is nothing to fear if it will face problems squarely as they arise.

**Out on a Hardwood Limb**

What Maury Castagne, our Eastern editor, says about the East, is going to come true in other areas, too.

He crawls way out on a (hardwood) limb to look at the future of the pulpwood industry in the East.

The trend is toward integrated, tree-length logging. It is not feasible to handle hardwood in 4-ft. lengths. There is no reason for it except "that's the way we handle softwood." Tree-length logging gives you better production.

The intensive drive to use every single fiber available is drawing the pulpwood and sawtimber industries closer together. Cooperative groups will spring up and there may be mergers.

There is no shortage of fiber in the East. When hardwood, the "Cinderella" fiber, really comes into its own there will be a tremendous, dynamic surge of pulp-paper activity.

**Rex Hovey—a Tribute**

The industry is going to miss Rexford William Hovey, vice chairman and former executive vice chairman of Oxford Paper Co.

In World War II he served the United States and this industry well, as head of the War Production Board's division for this industry. Oddly enough, he handled a remarkably similar job in Canada in World War I, as pulp and paper chief, too.

Personally, PULP & PAPER editors will miss Rex Hovey, too. His helpfulness when he was in Washington, and also in industry positions of responsibility, made it possible for PULP & PAPER to report important facts accurately to the members of this industry.

**What An "Outsider" Sees**

At a mixed industry affair in Chicago the other day, we sat next to an editor of a nationally known engineering magazine.

"The paper industry can't miss," he said. "A year from today, there will be another batch of announcements of new mills."

Interesting, anyway, from a trained outside observer.





Chinese Rouge Box of the Ch'ien-lung Dynasty (1736-1795 A.D.). Made of blue and white porcelain, featuring the Yang-Yin symbol on the cover.

Courtesy of The Metropolitan Museum of Art, New York.



This symbol (Yang-Yin) represents T'ai-chi, the old Chinese *Ultimate Principle*, and as such, perfection. As the Asten-Hill trademark it symbolizes perfection in ASTEN DRYER FELTS for paper mills.

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